THE GAS JOURNAL

OCTOBER 26, 1932

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A Glance at the Contents—

Gas Manager Required.

The Borough of Richmond (Yorkshire) invite applications for the position of Manager to the local Gas Undertaking. [p. 283.]

Coke Oven Managers' Association.

An account of the Annual Dinner of the Association, and a visit to the Beckton Works of the Gas Light and Coke Company, commences on p. 267.

Presidential Address of Mr. H. P. Lupton.

In his Presidential Address before the Manchester and District Junior Gas Association, the newly appointed President, Mr. H. P. Lupton, B.Sc., of the Liverpool Gas Company, reviews the many points which the junior should watch in his everyday work throughout the various phases of the Industry. [p. 274.]

Loss in C.V. of Gas Stored in Holders.

Further to a letter which appeared in our issue of Jan. 13, 1932, in connection with tests which were run to determine the loss, if any, in calorific value of gas stored in waterless holders, Mr. H. H. Gracie, Engineer and Manager of the Edinburgh Gas Department, gives particulars of a series of recent tests on a water-sealed holder. [p. 260.]

Chief District Inspector Required.

Applications are invited by the Lea Bridge District Gas Company for the position of Chief District Inspector. A commencing remuneration of £5 per week is offered. [p. 283.]

Our Supplement To-day.

A Special Supplement consists of an abstract of the Reports to be presented at the Research Meeting of the Institution of Gas Engineers to be held at the Institution of Mechanical Engineers, London, Nov. 1-2.

Gas Exhibition at Burnley.

Striking details of the progress of the Gas Industry, and the important part it is playing in the industries of the country, were given by Sir Francis Goodenough, C.B.E., when he opened the Exhibition promoted by the Burnley Corporation Gas Department. [p. 265.]

Institute of Fuel.

The need for research in the coal industry formed the subject of Sir Hugo Hirst's Presidential Address before the Institute of Fuel. "If only the coal industry had from its early days taken in hand the scientific use of coal," he says, "what an entirely different state of affairs might exist to-day!" [p. 271.]

Forthcoming Engagements

Oct. 27.—SOUTHERN ASSOCIATION OF GAS ENGINEERS AND MANAGERS (EASTERN DISTRICT).—Meeting at 28, Grosvenor Gardens, London, S.W. 1, 2.30 p.m.

Oct. 27.—MIDLAND ASSOCIATION.—Meeting at Imperial Hotel, Birmingham. Paper by Mr. Arthur Roberts.

Oct. 27.—EASTERN COUNTIES GAS MANAGERS' ASSOCIATION.—Meeting at 28, Grosvenor Gardens, S.W. 1, 2.15 p.m. Paper by Mr. C. B. Donkin.

Oct. 31.—LONDON AND COUNTIES COKE ASSOCIATION.—Meetings of Executive Committee, 11 a.m.; Central Committee, 12 noon; Luncheon, 1 p.m.; Annual General Meeting, 2.30 p.m.; Hotel Metropole, Whitehall Rooms, S.W. 1.

Nov. 1-2.—INSTITUTION OF GAS ENGINEERS.—Autumn research meeting.

Nov. 3.—SOCIETY OF BRITISH GAS INDUSTRIES.—Council Meeting, 11.30 a.m.

Nov. 3.—SOCIETY OF BRITISH GAS INDUSTRIES.—Autumn General Meeting, Hotel Metropole, London.

Nov. 5.—LONDON AND SOUTHERN JUNIOR ASSOCIATION.—Visit to Beckton Coke Oven Plant.

Nov. 5.—SCOTTISH JUNIOR ASSOCIATION.—Joint Meeting in Edinburgh. Paper by Mr. C. S. Poulson, of West's Gas Improvement Co., Ltd.

Nov. 8.—NATIONAL GAS COUNCIL.—Meeting of Central Executive Council, 28, Grosvenor Gardens, S.W. 1.

Nov. 8.—FEDERATION OF GAS EMPLOYERS.—Meeting of Central Committee, 28, Grosvenor Gardens, S.W. 1.

Nov. 10.—MIDLAND JUNIOR ASSOCIATION.—Address by Prof. F. W. Burstall.

Nov. 16.—SOUTHERN ASSOCIATION.—General Meeting, Hotel Metropole, London, W.C., at 2.15.

1932 "JOURNAL" Directory.

Page 66. TENDRING HUNDRED (Walton-on-Naze). Mr. C. J. Robinson, Engineer and Manager, deceased.

INCOME-TAX 1932-33.

Once again it is opportune to remind those of our readers who are affected that any objection to the Income-Tax Assessments now being issued from Inspectors' Offices throughout the country must be given in writing within 21 days of the date of the Notice of Assessment, and should specify the general grounds of appeal. Failure to do this, it should be noted, may invalidate any claim to re-open the assessment at a later date.

On another page is an advertisement of Seymour's "Assessment of Gas Undertakings," which indicates some of the grounds on which an amendment of the assessment may be claimed. To quote the words of the Chief Accountant to the Gas Light and Coke Company, this book "cannot fail to assist and interest (not only for study but for reference) the many officials in the Gas Industry who are either directly or indirectly affected by the problems of Imperial and Local Taxation." The publication is thoroughly up to date and gives references to the Finance Act, 1932.

EDITORIAL NOTES

Our Supplement

INCLUDED with this issue of the "JOURNAL" will be found a Supplement containing our abstracts of the reports to be submitted next week at the Autumn Research Meeting of the Institution of Gas Engineers. This is a repetition of the procedure adopted twelve months ago. On that occasion many friends were warm in their appreciation of our enterprise in placing in their hands, before the meeting, and in a single document, what we regarded as the salient portions of the reports to be presented. It is hoped that this Supplement of the "JOURNAL" will evoke similar expressions of approval.

The period available for the preparation of the Supplement has been very brief, and there has been much other work requiring at the same time the attention of the editorial staff, but within these limits—and bearing in mind the all-important consideration of space—every care has been taken in the selection of the extracts, which we feel will set out the main points for debate at the meeting in a manner convenient to the great majority of the members. Most of them, these days, are very busy men, and we are out to assist both them and ourselves.

Glancing back to the volumes of the "JOURNAL" of a few years ago, one cannot fail to be struck by the amount of space that was devoted to reports of this character. Those were spacious days—we are already beginning to regard them as "the good old days" or "the bad old days"—but, with all their spaciousness, they would not have afforded room for the publication of all the documents that now come along, and when we do reproduce such documents at length readers of to-day assure us that they have not time to read them. Thus the extract, abstract, or summary has become both a necessity to us and a convenience to readers, and we are not alone in welcoming the action of the Institution in dealing with their Reports by embodying the substantive matter and conclusions in a brief Section at the beginning of each publication and developing in the Appendices such subjects as the description of the plant, the details of the investigation, and statistical information.

This will enable members readily to get to the gist of each Report, but a saving might be effected if this Section were published separately and issued to all members apart from the Appendices, permitting members to apply for the full Report if it were of sufficient interest—a reasonable charge being made for the Report, instead of issuing it without charge as at present to those applying for copies before the meeting. A good example of the efficacy of the arrangement now made by the Institution is seen in the 31st Report, which, consisting of 164 pages, is dealt with generally in a fifteen-page Section at the beginning of the Report; the various topics being developed in twelve conveniently arranged Appendices.

"Back to Coal"

EVERYONE who has the welfare of the Nation at heart necessarily wishes the return to prosperity of the Nation's basic industry—coal—and will be anxious to encourage any effort on the part of the coal industry to raise itself from the sad state in which it is to-day. A most important analysis of the prevailing conditions in the industry was given by Sir Hugo Hirst in his Presidential Address to the Institute of Fuel last week, an extract from which is published in the "JOURNAL" to-day. All who desire to become acquainted with the difficulties which the industry has to face, and must overcome, will find the address a real aid. It shows, for example, that in fifty of the most important coal mining undertakings the earnings on ordinary capital for 1931 amounted to only 1%; and since the war the output of coal in the country has fallen by about 60 million tons per year, half of which is due to reduction in exports. The reasons for this reduction are not hard to find; and in the opinion of Sir Hugo Hirst nothing short of the removal of the world's trade depression will restore full prosperity to the coal industry. But this, he asserts, is a cause not for despair but for action, and he criticizes the industry sharply for not having interested itself in organized research into the marketing as well as the winning of its product. His criticism is, we think, largely justifiable, for it seems that it has only been through the external pressure of the larger buyers that the coal industry has made any attempt at classification, grading, and so on; and certainly it has not concerned itself very closely with the best methods of utilizing coal.

There is now, however, an awakening. There is on foot a "Back to Coal" movement which is receiving much publicity in the Press, and we have in our columns to-day an account of the formation of a Coal Utilization Council representative of the Mining Association, the coal merchants, and the traders. The aim of the Council is a simple one—to sell more coal to industry and to the household. At a meeting of the Coal Industry Society last week, Mr. Evan Williams explained how far the organization of the Council has progressed; and it is apparent that one of its major activities will be an endeavour to make the general public burn more coal in its raw state. At the present time 40 million tons of coal—a familiar figure—is consumed in the domestic firegrates of this country, and there is no getting away from the fact that the emission of 9 million tons of smoke from the domestic grate costs the country some £80,000,000 a year to counteract its evil effects. It would surely be a bad plan to encourage this sort of waste when other channels are available for the marketing of coal. Mr. Williams said that the coal industry is not antagonistic to the Gas Industry or the electricity industry. In view of the prices at present charged to the Gas Industry for coal, it is reassuring to have this statement. The Gas Industry is a steady consumer of 18 million tons of coal a year, and the extended use of gas must mean a greater amount of coal carbonized, and consequently a better outlook for the coal industry, for the future of the industry should depend on the refining of raw coal into fuels of wider scope and more hygienic application, rather than on the increased use of raw coal for domestic purposes. The coal industry would indeed be well advised to look upon the Gas Industry (and the carbonizing industries generally) as one of its foremost allies.

Forward—Not Backward

WE have been at pains to present our readers with as much information as possible on the use and treatment of coal. We have dealt at length with low-temperature carbonization, and such subjects as the hydrogenation of coal, the production of benzole from coal, the application of powdered coal, and also the latest development of all, what is perhaps mistakenly termed "colloidal" fuel, in our pages, so that our readers will have been able to gain a true impression of the facts concerning the possibilities of petrol from coal or of coal-oil suspensions. Only last week there was a contribution on coal-oil fuel by Prof. Brame, in connection with which we emphasized that powdered coal may be suspended quite well in coal-tar fractions, and that such a mixture would be an all-British product; and we mentioned that where the question of re-fuelling at ports became a difficulty, a compromise might be reached by using a coal-coal tar mixture on the outward journey and oil on the homeward trip. This matter of the use of coal for marine purposes has had much publicity in the popular Press during the past few weeks. Of course, everything must be done where possible to use coal instead of imported fuel; but, to maintain a proper perspective, it must be remembered that the total amount of coal shipped as bunkers is less than that used annually by the Gas Industry, and represents only 6% of the total coal output. With the advance of science the interests of any one industry, if the satisfying of these interests is a bar to progress, cannot occupy first place; and there are

reasons why liquid fuel for particular marine purposes is more efficient than solid fuel. As far as our Navy is concerned we have the following significant statement by Sir Hugo Hirst: "It is quite useless for coal owners to beseech Parliament to revert to the use of coal in warships. The space occupied by coal for an equal cruising range is 60% greater than for oil. A battleship's bunkers can be filled with oil in a matter of hours while it required days to fill a bunker with coal. Oil can be largely stored in ballast tanks, and as a battleship is always congested its designer has, when oil is used, a much greater flexibility and can install more machinery, armament, and magazine capacity, thus creating a much more efficient fighting unit. We cannot afford to sacrifice the efficiency of national defence units at the plea of any sectional interests."

To our mind this does not imply that coal need take second place to imported oil, for it is a raw material for the production of a liquid fuel which can be used with high efficiency and which falls into line with the march of progress. We believe that the best line of research which the coal industry could undertake would be the transformation of the solid fuel into liquid and gaseous fuels and into electrical energy. Sir Hugo Hirst speaks of the complete gasification of coal into water gas, which he maintains would be cheaper and the storage problem would disappear, "though only a careful study could predict its financial value." That wholesale complete gasification is the cheapest method of producing gaseous energy is not at present supported by facts. But the outstanding point about all these problems is that we are woefully dependent on imported oil, though this country has wonderful coal resources, and though coal is a material from which a series of oils well-fitted to perform the work of those imported to-day could be produced. Research into the manufacture of oils from coal is one of the most important pieces of work which the coal industry in particular and the nation in general could pursue. The idea should be a forward one—not a backward one.

Wise Spending—A Lead

In a speech at Birmingham last Saturday, Mr. Neville Chamberlain, the Chancellor of the Exchequer, took the opportunity to make an important statement on the perplexing subject of expenditure—personal and public—in these days of financial stringency. A correct balance between spending and saving is of supreme importance to the re-establishment of national prosperity. Pressed too far, underspending, just as much as overspending, leads to industrial bankruptcy—underspending by the collapse of employment, overspending by the collapse of finance.

Dealing first with the private individual, the Chancellor, while urging the desirability of putting a little aside, suggests that normal expenditure should not be withheld in a mistaken idea that a public service is being served by keeping the money in the bank. As an example, he remarks that if a man's house wants painting and he can afford the money to do the work, it is wrong for the man to abstain from giving the contract to have the house painted and thus deprive a painter of employment.

On the question of public expenditure, Mr. Chamberlain expresses the opinion that public authorities, both national and local, have spent too much in relation to the resources of the people from whom they can get their money. He sums up the present position as follows: "I am satisfied that for the present both national and local authorities ought to confine themselves to the essential objects—by which I mean that expenditure which is necessary for the production of income, and expenditure which is necessary to maintain the efficiency of our services."

In other words, we take it that the Chancellor differentiates between revenue producing and non-revenue producing expenditure. A road improvement scheme or a park may add to the amenities of a town—but the capital charges form an added burden to the rates. On the other hand, expenditure on the modernization of an antiquated gas-works will in many cases more than pay the interest on the capital raised—leaving a little over for reducing the cost of gas to the consumer. Surely a case of economy! If our interpretation be correct, we feel that the Chancellor has by his speech at Birmingham given a lead to the Gas Industry to pursue its policy of modernization of plant and improvement of process efficiency which has been such a marked feature of the past ten years.

There are two outstanding reasons in support of this policy which impress us. Firstly, if the Gas Industry during these lean times carries on with inefficient plant through mistaken ideas of national economy—while money is being poured into the building of super-power stations—it will be difficult to keep the progress curve on the steady up-grade which spells success. The best security against competition from other forms of heat, light, and power is to offer the consumer modern equipment and a cheap supply of gas, which in its turn depends on modern gas making plant. The second point which indicates the wisdom of this policy of modernization is that from every point of view it seems a suitable time to buy necessary plant and equipment. Owing to the contraction of world trade, competition is keen and prices are low. Money can be raised at favourable rates of interest. But probably most important of all, by contributing to setting in motion the wheels of industry, unemployment will be reduced, taxation lessened, and the purchasing power of the consumer—upon which the prosperity of the Gas Industry depends—increased.

We therefore suggest that those responsible for our gas undertakings should consider any projected expenditure in the light of the Chancellor's two-fold test—expenditure leading to revenue and expenditure leading to efficiency—and if it passes this test to proceed with confidence in the policy of wise spending.

A Date to be Booked

The third Public Health Congress and Exhibition is to be held at the Royal Agricultural Hall, Islington, throughout the week beginning Nov. 14. Meetings have been arranged under the auspices of different public organizations, and an interesting and varied programme has been planned. On Nov. 15, at 3.0 p.m., at a meeting arranged by the British Commercial Gas Association, Sir Leonard Hill, F.R.S., will read a paper. Sir Francis Goodenough, C.B.E., the Chairman of the Association, will preside. Sir Leonard's researches into the effects of light and air on human beings are well known, and the results of his recent experiments on the rays given out by various sources of artificial heat and their effect on breathing and comfort will be of considerable interest to members of the Gas Industry. The paper, which summarizes these researches, is entitled "The Correct Use of Heat Rays for Producing Comfort in Living Rooms," and will be accompanied by demonstrations.

Certain of the infra-red rays, Sir Leonard has discovered, set up feelings of stuffiness and discomfort by their effect on the naked skin. Others give comfortable warmth without any detrimental effect on breathing. The relationship between the state of the skin and such diseases as asthma is generally recognized. Catarrh, too, may be increased by injudicious methods of room heating. It is therefore of great importance to discover which sources of heat allow the beneficial rays to have full play, and which are responsible for the rays that produce feelings of discomfort. These latter rays can be antagonized by currents of cool air or various screens, while certain sources of heat, such as open fires and modern gas fires, emit sufficient of the beneficial rays to counteract the obstructive rays.

These are some of the points Sir Leonard will raise, and it is hoped that many members of the Gas Industry will be able to attend this meeting. Arrangements have accordingly been made by which members will be enabled to do so at reduced railway fares. Free season tickets admitting to all meetings of the Congress, railway vouchers, and all particulars can be obtained on application to the British Commercial Gas Association.

There is to be a meeting under the auspices of the National Smoke Abatement Society on the morning of the same day, and it is to be hoped that many members of the Gas Industry will attend that session also.

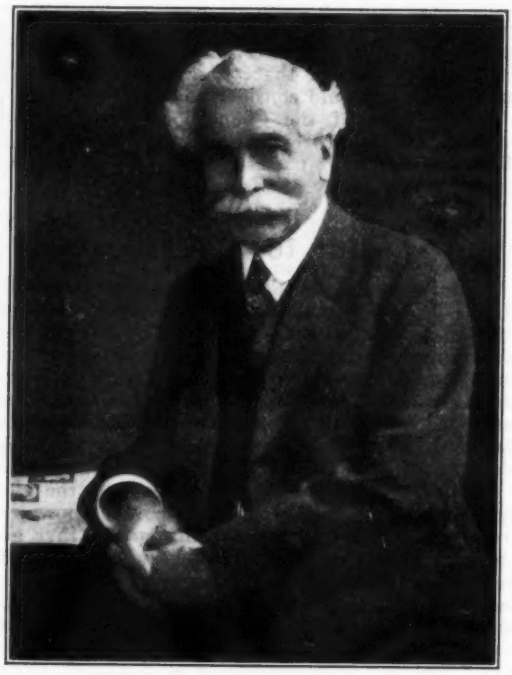
PERSONAL

RETIREMENT OF MR. F. R. SMITH.

Mr. F. R. Smith is retiring from the Board of Messrs. Parkinson & Cowan, Ltd., after a life-long connection with the gas meter industry. The old firm of W. Parkinson & Co., successors to the brothers Crosley, first makers of gas meters, owed its prosperity in no small measure to his activities. By his enterprise and negotiations, the old-established firm of John Bent & Son, of Bell Barn Road, Birmingham, was subsequently acquired and absorbed; also the Standard Meter Company of Toronto. Then, in 1900, a limited Company was formed, and the amalgamation with Messrs. W. & B. Cowan took place. Mr. Smith relinquished full-time management as far back as 1918, but has retained his Directorships and continued to take an active interest in the business up to the present time.

With such a gradual retirement Mr. Smith may, in his modesty, hope to escape that notice which is due to one who has had so long and honourable a connection with the Gas Industry. Nevertheless, Engineers, Gas Officials, and Contractors, of the old school, will long retain the memory of his genial manner, practical friendship, and prompt business dealing.

A document much treasured by Mr. Smith is the form by which he was originally nominated as an Associate of the Institution of Civil Engineers, for it bears the following



MR. F. R. SMITH.

notable signatures, among others: George Livesey, Corbet Woodall, Chas. Carpenter, Chas. Hunt, J. B. Paddon and J. M. Paddon (father and son).

But it is the memory of his association with the workers that will probably be cherished most by Mr. Smith. The employees at the old works in Cottage Lane, City Road, have always had his special consideration, and have benefited through their sick club from a special endowment at his personal expense.

It is impossible to dissociate Mr. Smith from activity while his faculties remain unimpaired; and as he will still continue his Directorship of several Gas Companies, his many friends will hope to see him occasionally in town and offer best wishes for his health and happiness with added leisure.

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Mr. H. W. MURPHY, well known in the Gas Industry in the Midlands, has been appointed to succeed the late Mr. Alfred Austin, who represented Messrs. Cannon Iron Foundries, Ltd., of Deepfields, on this ground for the last 37 years.

* * * *

Mr. W. J. BAKER, Engineer-in-Chief to the Shanghai Gas Company, who arrived in England on April 27 last for a six months' stay to complete arrangements for the purchase of new plant, set out on his return journey to Shanghai on the s.s. "Ranpura" on Thursday of last week, Oct. 20.

* * *

Our readers will be interested to hear of a happy event in the household of Mr. J. KENNETH N. DAVIS, Director of the Davis Gas Stove Company, Ltd., whose wife has just presented him with twins—a boy and a girl.

OBITUARY

Mr. J. AINLEY, a Director of the Elland-cum-Greetland Gas Company for the past eleven years, died suddenly at Southport on Saturday, Oct. 15, and was interred at the Elland Cemetery on Tuesday, Oct. 18.

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Mr. C. J. ROBINSON, who has been Engineer and Manager at the Walton-on-the-Naze Gas-Works for the past fourteen years, died on Oct. 14.

* * *

The death has occurred of Mr. DAVID BARRIE, a Director of Messrs. Alexander Russell & Co. (Glasgow), Ltd., who has been associated with the firm for many years. His death took place in a nursing home in Glasgow on Sunday, Oct. 16.

* * *

Widespread sympathy will be extended to Mr. PERCY F. HOLMES, J.P., and family in their recent bereavement. Mr. Holmes, of "Coverdale," Huddersfield, has long been associated with the Gas Industry as Chairman of Messrs. W. C. Holmes & Co., Ltd., and it is with regret that we have to announce the death of his wife on Friday last, Oct. 21, after a prolonged illness.

Correspondence

Loss in C.V. of Gas in Holders.

SIR,—With further reference to the letter which appeared in your issue of Jan. 13, 1932, in connection with certain tests which were run to determine the loss, if any, in calorific value of gas stored in waterless holders, I have to inform you that we recently undertook a series of tests on a water-sealed holder; and I enclose copy of the results herewith.

The experiment was started at 6 a.m. on Sept. 28, 1932, and continued until 11 a.m. on Oct. 6. Calorific tests were made every two hours on the inlet and outlet mains on our telescopic gasholder, which has a capacity of 6¾ million c.ft. A Boys calorimeter, certified by the Gas Referees, was used, and the same instrument utilized for both inlet and outlet tests. These were made consecutively—*i.e.*, the outlet being one quarter of an hour after the inlet.

The figures taken give the average calorific value, barometer readings, and temperatures per shift, and per 24 hours. The temperatures are:

A. The gas passing through the calorimeter.
B. The gas in the inlet mains.
C. The gas in the outlet mains.

The atmospheric temperature was taken from a thermometer hanging near the gasholder. These readings were taken at intervals of 2 hours.

There was little variation between the calorific value of the inlet and outlet gases, and generally they are in fairly close agreement both in the shift average and in the 24 hours' result. The greatest difference in any one shift was 6·2 B.Th.U., and the greatest difference in any one day was 2·3 B.Th.U.

The average of all tests are:

Inlet to holder, 97 tests = 498·4 . . . (514·5 max., 484·6 min.)
Outlet of ,, 97 ,, = 498·1 . . . (507·0 ,, 490·8 ,,)

Calculated on a thermal basis for every 24 hours, figures obtained were thus:

The calorific values at the beginning and end of every 2-hourly period were averaged, and this was multiplied by the volume of gas to get the total therms passed in the 2 hours.

The total gas passed in the 24 hours was then divided into the total therms for the 24 hours to give the average calorific value for the day.

The greatest difference in any one day was 4·9 B.Th.U., and the total difference over the whole period is 1·1 B.Th.U.

Yours, &c.,
H. H. GRACIE,
Engineer and Manager.

Edinburgh Corporation Gas Department,
Oct. 14, 1932.

THE NEWS OF THE WEEK

Progress of Waterless Gasholders.—We learn from the Waterless Gasholder Company, Ltd., that in Great Britain there are, either in actual use or on order, 31 waterless holders. Throughout the world there are no fewer than 247 waterless holders of a capacity of 665 million c.ft. Germany accounts for 92 of these holders, the United States 46, and France and Saar 21.

At the Ideal Home Exhibition held at Camborne recently a popular feature was the series of cookery demonstrations given by Miss Crawford-Fox, M.C.A., of the Parkinson Stove Company, in conjunction with the Camborne Gas Company. Over 5000 people attended the Exhibition and demonstrations during the week it was open, and the "Calthorpe" cooker and the new "Curvex" fire, two of the Parkinson Stove Company's latest productions, attracted much attention.

Reporting on the Re-Organization of the Port Talbot Gas-Works, Mr. Edwards, the new Manager, said that they had made and distributed 7·6% more gas during the past month in comparison with the corresponding month of last year and used 438 tons of coal less in its manufacture. This saving was mainly due to the installation of the new plant. Experiments were not yet complete, and when the contractors' expert returned from Warsaw in January next he would carry out a series of tests with Welsh nut coal.

The British Empire Trades Index, the 1932-33 edition of which has just been published, is a 600-page volume covering some 35,000 leading Empire firms, arranged alphabetically and classified by trades for immediate reference at all times by the buyer or seller of British Empire products. The primary aim of the publishers (Business Dictionaries, Ltd., of 8 and 9, Johnson's Court, Fleet Street, E.C. 4) is to place the volume within range of those buying goods in large quantities; and also to place it in the hands of those whose business extends to the most important markets where foreign catalogues and periodicals are thickly distributed. The Gas Industry section is comprehensive and includes the names of many well-known makers of gas plant and accessories. Complete copies of this book to the number of 25,000 are discriminately circulated free for the sole purpose of inducing trade with British Empire makers and suppliers.

Illingworth Carbonization Company.

[From the "Financial Times."]

The accounts of the Illingworth Carbonization Company to Aug. 31 show an increase of £6965 to £51,606 in the development and research item since Oct. 3, 1931. The Board has included the results of associated companies as up to Aug. 31, and in future accounts will be made up yearly to that date.

The plant for Ricarbon Soc. Anon. in Italy, which came into operation in October, 1931, has been working very satisfactorily, states the report. The plant erected by the French Associates for Les Mines de Courrieres in France came into operation in December, and such an excellent demand has been obtained for the smokeless fuel and bye-products that the Company decided in May last to double the size of the unit then in operation. The enlarged installation is expected to be in full work by the end of the year. The plant now in course of erection at Maubeuge, which is to be of 250 tons daily capacity, will be brought into operation early in the new year.

During June and July Mr. S. E. Illingworth visited the United States and Canada. Arrangements have been completed with the Pittsburgh Coal Company, Pittsburgh, Pa., one of the most important colliery owners in the States, for the complete development of the Illingworth process in the United States. This arrangement brings an immediate substantial benefit and provides for a most valuable continuing interest, together with the highest possible technical and financial support for large-scale operation.

Arrangements have also been come to in Canada whereby the Company will have the benefit of valuable co-operation on lines which will provide for the best type of development, together with the necessary financial arrangements.

Mr. J. P. E. Walker has joined the Board.

"Light in Industry."

The happy spirit which Co-Partnership fosters was particularly in evidence on the occasion of the Annual Autumn Rally of the Hastings and St. Leonards Gas Company Co-Partners, on Friday, Oct. 14, when a company of over 400 Co-Partners and their friends took part in a Social and Fancy Dress Dance on St. Leonards Pier.

After a concert provided by the "Gay Lights" Concert Party, and the Radiation Orchestra, both of which are part of the Social Club organization, a parade of fancy dresses was formed in which several original and ingenious ideas were expressed.

The Judges were Councillor H. Burden (Director, and Mayor-Elect of Hastings) and Miss Burden and Mr. J. Parsons and Mrs. Parsons. There were also present Messrs. A. M. Apel (Chairman of Directors), H. H. Moppett and J. Lockey (Directors), C. F. Botley, M.Inst.C.E. (Engineer and General Manager), A. Young (Secretary), A. Coote (Chief Cashier), and their ladies.

Two of the prize-winning costumes shown in the photograph reproduced received special commendation. "How co-partnership brings light to the dark problems of industry" was represented by the huge upright mantle, while the other costume was ingeniously made from outer covers of the Co-partners' own monthly magazine, "The Therm," with a head-dress representing a gasholder. The Directors of the Company always take a keen interest in the social life of the employees.

Electric Light Failure in a Hospital.

Two major operations were in progress at the Royal Northern Hospital, Holloway, N., when the electricity supply failed on Oct. 17. The matter is referred to in "The Times" of Oct. 18.

The Secretary stated that, thanks to an automatic emergency lighting system which came into play immediately the ordinary supply failed, the operations were not interfered with. Had they been, the result might have been serious.

The failure occurred at 5.15 p.m. The Secretary stated that after a short time the supply returned, but almost

THE NEWS—*continued.*

immediately the lights again flickered and went out. Storm lamps were used in the hospital wards and corridors. Where the emergency lighting is in use there was a moment of blackness when the light failed, but almost immediately the emergency lights went on.

The failure continued for 45 minutes. The large arc lamps in Upper Street, Islington, went out and the heavy rush-hour traffic proceeded in semi-darkness. Two cinemas were in darkness. At the Blue Hall, Islington, both the lighting and the electric supply which operates the sound films were interrupted.

East End Light Failure.

A large area in the East End of London, involving Bow and Bromley, also experienced a failure of the electric light on the same night. The whole district covered by the electricity department of Poplar Borough Council was affected, including the Poplar Hospital for Accidents in East India Dock Road, E. The wards and the whole of the hospital had to be illuminated by candles. The failure occurred about 8.20 p.m.

The breakdown was repaired shortly after 9 o'clock and the normal lighting was resumed.

Illuminating Engineering Society Visit Shakespeare Memorial Theatre.

Members of the Illuminating Engineering Society, including their President, Lieut.-Commander Hadyn T. Harrison, R.N.V.R., M.I.E.E., paid a visit to the Shakespeare Memorial Theatre, Stratford-on-Avon, on Oct. 18.

The party left London by train at 11.30 a.m. for Coventry, whence they continued their journey by motor coach through the beautiful Shakespeare country to Warwick. Here they partook of luncheon at "The Porridge Pot," after which they had an opportunity of inspecting the famous Warwick Castle.

Leaving Warwick at 2.45 p.m., the party arrived at Stratford-on-Avon at 3.30 p.m., and were conducted over the Shakespeare Memorial Theatre, the lighting arrangements of which were demonstrated by Mr. C. Harold Ridge. Tea was provided in the Theatre, after which the members visited various historic buildings in the village. The party left Stratford-on-Avon at 5.15 p.m. by coach for Coventry, where they entrained for London.

Institution of Gas Engineers.

Copies of the following recently issued British Standard Specifications may be obtained, price 2s. each, from the Secretary, the Institution of Gas Engineers, 28, Grosvenor Gardens, London, S.W. 1:

Marking and Colouring of Foundry Patterns (No. 467—1932).

Electric Overhead Travelling Cranes (Power Driven in all Motions) (No. 466—1932).

Revised Gas Charges at Aberdeen.

In presenting the Estimates of the Gas Department for the year ending May 31, 1933, Councillor Catto, Convener of the Gas Committee, directed attention to the table of charges printed in the Minute, showing that a certain scaling down is suggested when these are compared with the charges at present in force.

This decision was arrived at after careful consideration both of the present financial position of the Undertaking and of the conditions that seemed likely to maintain during the year. It was the unanimous opinion of the Committee that the wisest course to adopt was the one they now suggest—namely, that the basic charge should be retained, but that the graduation of the scale should be both quickened and steepened.

Accordingly, it is now suggested that the first reduction should take place at 5000 c.ft. per quarter in place of at 10,000 c.ft. under the old scale. The reduction of 6d. per 1000 c.ft. per quarter for all consumptions of over 5000 c.ft. up to 50,000 will be participated in by the great majority of gas consumers, while the remaining reductions proposed, especially when the maximum consumption entitling users to the lowest price has been brought down from all over 2 million to all over 1 million, should do much to encourage the use of gas by large scale users both industrial and domestic, and will be welcomed by all as an aid in helping them to pull through the present strenuous times.

These new charges will mean a considerable reduction in revenue, but this has been kept in mind when drawing up the estimates, and the Committee have every confidence that the estimates have been prepared after due consideration of all factors involved. The citizens of Aberdeen, said Councillor Catto, have every reason to be proud of their Gas Undertaking, and their thanks are due to Mr. S. Milne, their esteemed Gas Engineer and Manager; to Mr. R. G. Duthie, their respected City Chamberlain, for their sound advice on technical and financial matters, and also to their respective staffs for the able way they have carried out their duties.

The following are the prices to be charged for gas consumed by ordinary meters:

For the first	5,000	c.ft.	per quarter at	5·4d.	per therm or	2s. 3d.	per 1000 c.ft
,, next	45,000	,,	,,	4·2d.	,,	1s. 9d.	,,
,, ,,	50,000	,,	,,	4·0d.	,,	1s. 8d.	,,
,, ,,	150,000	,,	,,	3·8d.	,,	1s. 7d.	,,
,, ,,	250,000	,,	,,	3·6d.	,,	1s. 6d.	,,
,, ,,	500 000	,,	,,	3·4d.	,,	1s. 5d.	,,
For all over	1,000,000	,,	,,	3·2d.	,,	1s. 4d.	,,

This means that if the quarterly bill is for 10,000 c.ft., the charge will now be 20s. in place of 22s. 6d., as formerly; if it is 50,000 c.ft., the charge will be £4 10s., in place of £5 2s. 6d.; if it is 100,000 c.ft., the charge will be £8 13s. 4d., in place of £9 14s. 2d. These typical examples show reductions of from 9 to 12%.

Cookery Demonstrations at Ryde.

Successful cookery demonstrations, arranged by the Ryde Gas Light Company, concluded on Oct. 14, and these were attended throughout the five days on which they were held by well over 750 people.

A cake-baking competition was held, for which three prizes were awarded, and a large number of entries were received. Particular interest was shown in demonstrations of bread-baking and also in the cooking of complete dinners in a "Regulo"-controlled oven at one time and setting of the dial.

Brownhills Receives Gas from Cannock.

Brownhills (Walsall) received on Oct. 12 last its first supply of gas from the new mains laid down by the Cannock and District Gas Company, which has acquired the Ogley Hay and Brownhills Gas Company's undertaking, and concentrated the manufacture of gas at the Cannock Works.

To secure effective conveyance of the new supply, six miles of high-pressure steel mains have been laid down between the two towns, and a steam-driven compressor, capable of delivering 25,000 c.ft. of gas per hour has been installed in a new building at the Cannock Works.

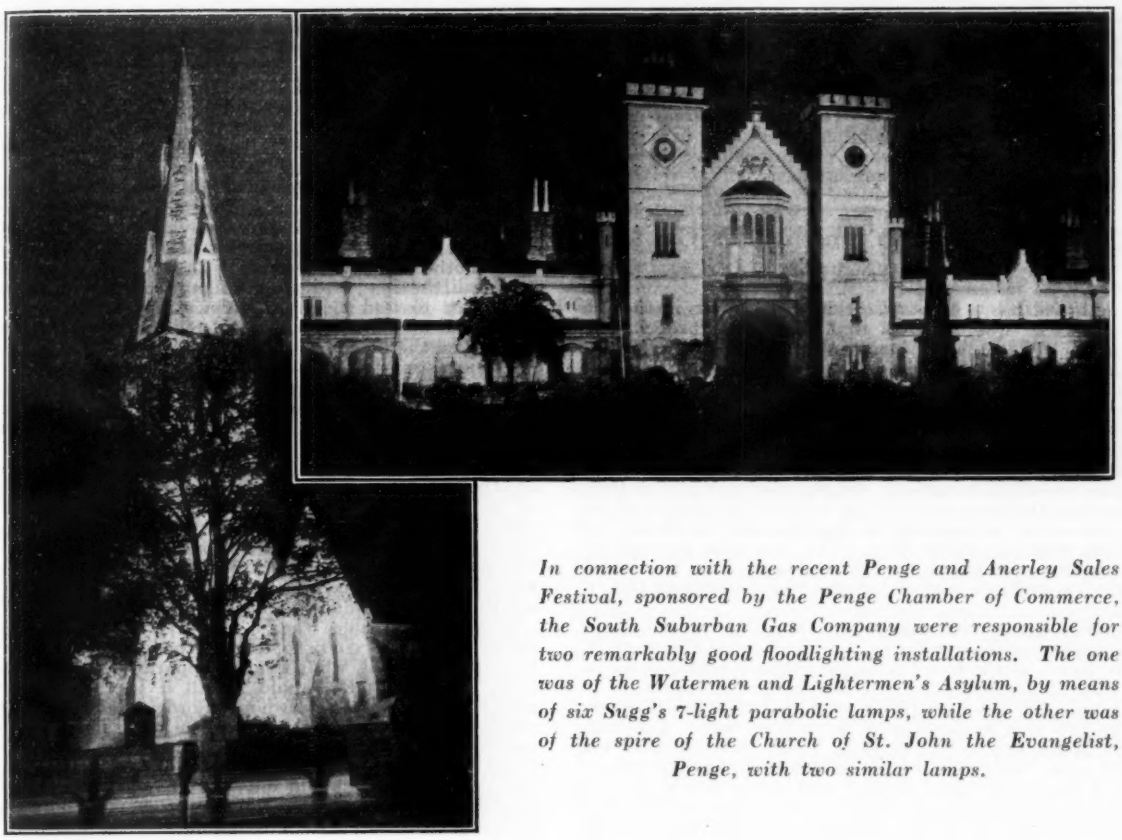
This building was formally opened by Mr. T. A. Hawkins, J.P., Chairman of the Cannock Company, which is now amplified by the absorption of the Brownhills Company, and Mr. Hawkins also set in motion the compressor. After he had done so he reviewed the progress of the Company from 1898, when it became amalgamated with the Hednesford Gas Company, their mileage of mains having been increased from 12 to 22½. This mileage increased in 1931 to 54½ miles, and in the past year had advanced to 64. Seven miles of Brownhills mains had now been taken over, making the total mileage of mains in the control of the Company over 70.

Mr. S. E. Loxton (Vice-Chairman) said there was every indication that the amalgamation would be for the benefit of both areas. Already there had been a slight decrease in the price of gas in the Brownhills district, and it was hoped there would be further decreases. They had the electricity to fight against, but that was a rivalry which they did not fear. It was hoped the gas amalgamation would assist in linking the two industrial centres of Brownhills and Cannock together as they had never been before.

Brief speeches were also made by Sir John Ferguson Bell (Director), Mr. J. Hollowood (Chairman of the Cannock Urban Council), Mr. H. V. Emery (Chairman of the Brownhills Urban Council), Mr. Sidney H. Harvey (Cheslyn Hay), Mr. M. Wright (Chairman of the Cannock Electricity Committee), and Messrs. A. S. Clarke (Tipton) and G. Coates (Stroud) on behalf of the contractors who had carried out the extension.

A silver cup was presented to Mr. Hawkins, and a silver cake dish to Mr. Loxton as a memento of the occasion.

Good Examples of Gas Floodlighting



In connection with the recent Penge and Anerley Sales Festival, sponsored by the Penge Chamber of Commerce, the South Suburban Gas Company were responsible for two remarkably good floodlighting installations. The one was of the Watermen and Lightermen's Asylum, by means of six Sugg's 7-light parabolic lamps, while the other was of the spire of the Church of St. John the Evangelist, Penge, with two similar lamps.

Comprehensive Group Life Insurance.

Plan for All Permanent Employees of the Cardiff Gas Light and Coke Company.

Group life insurance schemes continue to grow in popularity with both employees and employers throughout the United Kingdom. One of the latest, and one which contains every modern adjunct possible to such a plan, has just come into operation covering the permanent staff and works employees of the Cardiff Gas Light and Coke Company. Practically all employees have joined, and a large new volume of insurance protection has been provided for the wives and children of men residing in Cardiff and its vicinity as a result of this scheme.

All permanent works employees are eligible for £100 of life insurance and other benefits described later for a small contribution from them of 3d. weekly. The balance of the cost of the plan in all cases has been met from available funds which have been allocated for this purpose, while the permanent staff employees are grouped into classes according to salary and earnings.

The plan has already become effective for all permanent employees, and new permanent employees will become eligible after they have completed twelve months' continuous service. In the event of total and permanent disability before age 60, the life insurance will be paid directly to the insured member in from 40 to 60 monthly instalments.

The disability feature is an exceedingly valuable one. The records of insurance companies show that one claim in every six under group insurance policies is for total and permanent disability. Inasmuch as such disability usually involves a period of long and costly illness, these payments to disabled employees often mean the difference between great financial difficulty and comparative comfort.

The plan contains no requirement for a medical examination, and all eligible employees were able to join irrespective of age or state of health. This is a valuable privilege, because it is well known that in every considerable number of persons there are some who would be unable to secure individual policies through some perhaps unsuspected physical defect which a medical examination would disclose.

The plan has been placed for administration with the British Isles Head Office of the Metropolitan Life Insurance Company of New York, whose headquarters are in Bush House, London. The Metropolitan maintains funds more than adequate to cover all its liabilities in Great Britain, all of which are invested in British securities. In the event of a member of the plan leaving the service of the Cardiff Gas Light and Coke Company for any cause, he has the right to secure an individual policy for the same amount carried in the plan, at attained age and rate, and without medical examination, if application for such a policy is made within 31 days. Thus it may be said that the plan is a permanent one, and in no sense limited to the period during which employment with this particular enterprise may continue.

There are various other features of this interesting plan, the most important of which is free nursing service. The Insurance Company provides competent trained nurses who, in cases of illness or disability, are available to call at the home, assist in carrying out the doctor's instructions, and give any possible aid. In plans which have been longer established this feature has become exceedingly popular and has helped materially in improving the general health of many groups, to say nothing of the relief given to many hardworking wives or other dependents. There is no charge or deduction of any kind for this service, nor does anything in the plan supersede or conflict in any way with benefits payable under Workmen's Compensation, the National Insurance Acts, or any other benefits to which members may be entitled.

The decision of the Cardiff Gas Light and Coke Company and their employees to adopt this plan is of interest to the Gas Industry. Mr. H. D. Madden, Engineer and Manager, and Mr. Robert J. Auckland, Secretary, have long been active in everything which contributes to the well-being of the personnel of their staff and workers.

The popularity of group insurance is due to many factors, but its cheapness and entire freedom from complexity are probably the most important. It costs the employee on the average about one-fifth of what individual insurance would cost. Its importance from the social and national points of view may be judged from the fact that whereas the

THE NEWS—*continued.*

average industrial policy in this country is for £16 5s. almost all group insurance plans have a minimum of £100. In many plans the workers have appreciated the possible benefits so much that the insurance has been repeatedly increased, the average in some being well above £300.

It is the theory of group life insurance that it provides help at the moment when help is needed most. In most cases death claims are paid within 24 hours to the beneficiary named by the insured member, and it is rare for any payment to require 48 hours. This means a great deal to many suddenly bereaved families, especially in a period like this when causes over which employees have no control have contrived to deplete their savings.

A Civic Visit to Smethwick's Gas Undertaking.

Smethwick has a great tradition to maintain in the Gas Industry. It was in 1798 that William Murdoch, the originator of gas lighting, removed from Redruth to Messrs. Boulton & Watt, Soho Foundry, where he further developed his experiments. It was within a few yards of Murdoch's simple gasholder that Smethwick began gas-making. Smethwick originally formed part of the district supplied by the Birmingham and Staffordshire Gas Light Company. In 1875 the powers of this Company were purchased by the Corporation of Birmingham. Smethwick, along with West Bromwich, Oldbury, and Tipton, availed themselves of the privilege—after arbitration, as was provided in an Act—of erecting works for themselves. The purchase price of the undertaking amounted to £56,090, and the Smethwick Works, erected at a cost of £49,000, were opened on Oct. 1, 1881.

It was a happy idea that so near the anniversary of the inauguration of the enterprise, the Chairman (Alderman A. M. Williets), of the Gas Committee, should have conceived the idea of arranging for the Mayor and Corporation to pay an official visit recently in order that they could realize to the full how modern needs have been met. The tour began at the showrooms in High Street, continued at the Distribution Station in Crocketts Lane, and ended at the foot of the 4-lift spiral-guided gasholder which has a capacity of 3½ million c.ft. of gas. The inspection revealed the way in which the great responsibility concerning Smethwick's only municipal trading concern is discharged. In quite recent days the works have been reconstructed and important developments made in the distribution station and showrooms. It was an instructive day, particularly for those who had not previously had the opportunity of realizing what a splendid contribution Smethwick is making to an industry which had its birth within its borders one hundred and thirty-four years ago.

At the conclusion of the visit Alderman Williets returned thanks to those who had paid a visit to the various departments.

Alderman Williets mentioned that during the early summer the Undertaking was feeling the effect of the economic stress, and it was decided that Mr. Hardiker, their Engineer and Manager, should inaugurate a special campaign. He recalled with satisfaction that in that campaign they were helped splendidly by the Mayor, and he was happy to say the effort had borne splendid success. The results amply demonstrated, in his opinion, the tremendous advantage of judicious advertising and the good effect of publicity. They were indebted to those who organized these campaigns: Mr. Davis and Mr. Cunningham, the Sales' Superintendent, had worked valiantly and with great success, and he congratulated them upon the results achieved.

The Mayor (Alderman Mrs. E. M. Sands, J.P.) expressed thanks to the Chairman of the Gas Committee and his colleagues for the visit.

Councillor Hewitson, the Chairman of the Finance Committe, also tendered thanks.

Mr. Ernest Hardiker said that all engaged in the Undertaking were glad that that official visit had been planned. It provided those responsible for the administration of municipal affairs with the opportunity of realizing their difficulties. Maybe, they were unduly criticized by people who did not exactly know what they had to contend with and how they endeavoured to meet the situation. It was a source of great satisfaction that they had accepted the invitation of the Chairman. He had personal cause for gratification by reason of the references to his staff of whom he was justifiably proud. Each member was content to do something beyond his duty—and that made all the difference to sympathetic working of any undertaking. What was more, they had a very good Chairman and an understanding Committee. So that there were all the elements that should make for satisfactory working.

Coal Utilization Council.

At a luncheon of the Coal Industry Society last week, Mr. Evan Williams addressed the Society on "The Aims of the Coal Utilization Council."

The Mining Association, the coal merchants, and the traders, he said, had joined together and had set on foot an organization to which the name of the Coal Utilization Council had been given. The aim of the Council was to sell more coal. That sounded simple, but, after all, it was not an easy matter to set about to effect. There was no difficulty in advertising—except the provision of funds—and urging the public to burn more coal and to use coal for all sorts of purposes; but that was not sufficient. It was necessary to get down to the roots of this matter and find out as far as possible all the causes, in detail, which had brought about the lesser use of coal and the substitution of other fuels for raw coal. This work would naturally take a little time; and when it had been done it would be necessary to find means for educating the public to use more coal and to substitute coal for the other fuels which had taken the place of coal.

The question fell into two branches; there was the industrial side and the domestic side, and the one presented probably as many problems as the other. On the domestic side there had probably been more harm done than on the industrial side, because there had been most insidious propaganda, very ably carried out indeed, by the purveyors of other kinds of fuel; and if these purveyors of other kinds of fuel had injured the coal trade in that way they had provided an example to follow. It was clearly the duty of the Coal Utilization Council not only to find out what was the position and the causes of the position, but to seek remedies for the position; and steps were being taken to see that that was done thoroughly and completely.

It must be possible, when it had been insisted that people should use more coal, to tell the people how they could best use that coal, what kind of apparatus they should install, and how they should install it in their homes, in public buildings, and elsewhere in order that coal might be employed instead of the fuel now in use. There was competition not only from foreign produced fuel but also from home produced products from coal as the raw material. The coal industry should have no quarrel with those who used coal to produce other forms of energy. There was no antagonism between the coal trade and the gas and electricity industries; but in just the same way as these industries had carried on an active campaign—and a successful campaign—against the use of coal so it would be for the coal trade, in friendly rivalry, to copy them and see if, in the same way, it was possible to get more coal used in its raw state than was employed at the present time.

In the work of the British Commercial Gas Association they had an excellent example of propaganda; and he had no doubt that body would be quite willing for the coal industry to copy its methods. These demonstrations of the uses of coal should not be presented spasmodically but should be part of a permanent organization for showing people grates, stoves, and all appliances which the coal industry said should be used in order to burn coal to the best advantage.

Cutting Out Casual Visitors to B.I.F. in London.

No Free Tickets.

Buyers visiting the British Industries Fair at Olympia and the White City will be charged 2s. for admission, receiving in exchange a badge admitting them for the period of the Fair, from Feb. 20 to March 3, 1933. They will be admitted free, as hitherto, to the Birmingham section at Castle Bromwich.

The new charge is being made in London because of the withdrawal, as part of the national economy campaign, of the Government publicity grant of £25,000, and the proceeds of the charge will be used to advertise the Fair.

In explaining the step which has been taken, Mr. D. J. Colville, M.P., Secretary of the Department of Overseas Trade, says he does not think that the small charge will materially affect the attendance of either home or overseas buyers. By this departure, he points out, the British Industries Fair will be falling into line with the chief Continental Fairs, where in some cases the admission charge to buyers is much higher than that now proposed for Olympia and the White City.

The charge, he adds, will help to limit attendances during the hours set aside for trade buying to legitimate buyers.

Invitations to the Fair, which will be the largest on record, have already been sent out to 67,000 overseas buyers in ten different languages as part of an intensified world campaign.

Gas Exhibition at Burnley

Striking details of the progress of the Gas Industry, and the important part it is playing in the industries of the country, were given by Sir Francis Goodenough, C.B.E., Chairman of the British Commercial Gas Association, when he opened, on Oct. 17, the Exhibition in the Mechanics' Institution, which is being promoted by the Burnley Corporation Gas Department to acquaint the public of the district with the latest developments in the manufacture of gas apparatus and appliances.

The opening ceremony was attended by the Mayor and Mayoress of Burnley (Alderman Place and Mrs. Place), the Borough Member (Rear-Admiral Gordon Campbell, V.C., D.S.O.), Mrs. Campbell, and the Bishop of Burnley (the Right Rev. Edgar Priestley Swain). Councillor W. F. Witham, Chairman of the Gas Committee, presided, and he was accompanied by Councillor J. H. Bracewell, the Vice-Chairman, and the members of the Gas Committee.

A feature of the proceedings was the speech of the Borough Member, whose advocacy of more efficient salesmanship as the stepping stone to further success made a deep impression. He also made a strong plea for the freedom of choice by householders between gas and electrical appliances, and pointed out a few of the directions in which the Gas Industry might proceed with advantage.

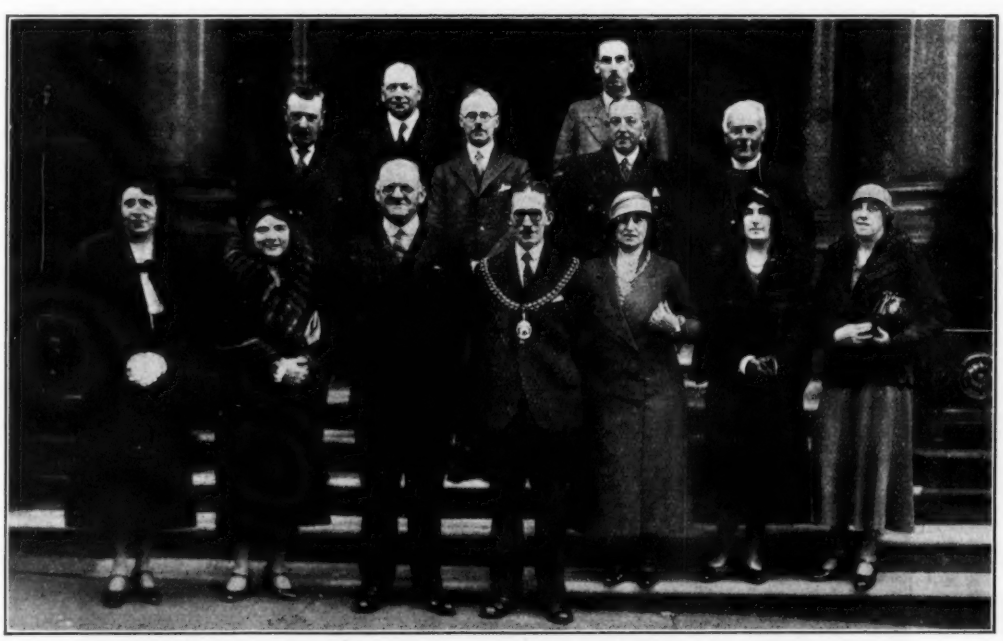
Councillor Witham said that improvements kept being evolved in gas appliances so quickly that the Burnley Gas Committee deemed it desirable to have exhibitions at least every three years. The Gas Industry was never so progressive and alive as it was to-day. It employed £180,000,000 worth of British capital and 100,000 people, besides many thousands of others in ancillary trades. It also utilized 20,000,000 tons of coal every year. The reason that the Gas Industry had made great progress during the last decade was owing to the extensive research work that was being carried on. He was proud to say that the Burnley Gas Department had kept in touch with the research work that was being done. As they knew, they had recently erected a new works which, for its size, could compare with any in the British Isles. They had also launched the four-part system, and they were selling gas as low as 2d. a therm, or 10d. per 1000 c.ft. They had also launched the two-part system for large domestic consumers who were charged as low as 4d. a therm and 1s. 8d. a thousand.

Sir Francis Goodenough said that he would like to congratulate the Burnley Gas Committee on arranging this comprehensive exhibition of gas appliances for the education and advantage of gas consumers in the district, and would like to associate in his congratulations his friend Mr. Clegg, their enterprising and capable Gas Manager. Mr. Clegg was well known in the Gas Industry, the members of which would agree with him that Burnley could have no better choice.

"The progress of the Gas Industry in recent years has, indeed, caused much surprise," said Sir Francis, "to those who thought that, with the advent of electricity, the Gas Industry was doomed to—perhaps a lingering but, at least, a certain—death. It is a very live dying creature. The latest official figures show that, during the past two years, there has been an increase in the sale of gas in the British Isles of no less than 10,000 million c.ft.—a good deal more than enough to supply the city of Manchester for a year—while the increase in the sale of gas has more than doubled since 1901,

"As a national industry," said Sir Francis, "the Gas Industry is deeply concerned that the nation's greatest material natural asset—coal—should be used in the fullest and most profitable way to the nation at large. It must never be forgotten that even where gas displaces coal the collier keeps his job. The best way 'back to coal'—that is, back from imported oil to home produced fuel—is through the gas-works and the electricity generating station, which, between them, enable industry to obtain heat and power from coal with an increase in efficiency of production, a marked improvement in conditions of labour, and without fouling the atmosphere of our towns and cities. There is an enormous field for the further use of gas throughout the industries of the country, especially where, as in Burnley, effective steps are taken to make known the way in which gas can help industry and terms are arranged for the supply of gas on a commercial basis."

Admiral Campbell, in the course of an address, said that the day of gas was by no means done, and every day research was demonstrating its usefulness. It was a product also where they were dependent on their own resources, and in these days that was a very good thing. One direction in which gas might make great headway was in the provision of gas refrigerators. More attention needed to be given to this sphere of the Gas Industry than was being paid to it at present. In the United States they could not go into a house which did not possess a refrigerator for keeping food fresh over the week-end and preserving it in hot weather. There was also the question of developing



This picture was taken after the opening ceremony of the Burnley Gas Exhibition. In front (left to right): Mrs. Campbell, Mrs. Gordon Campbell, Sir Francis Goodenough, C.B.E., the Mayor of Burnley (Alderman R. Place), the Mayoress (Mrs. Place), Mrs. J. H. Clegg, and Mrs. Harold Parkinson. Behind: Councillor W. F. Witham (Chairman of the Gas Committee), Councillor J. H. Bracewell (Vice-Chairman), Mr. J. H. Clegg (Gas Engineer), the Borough Member (Admiral Gordon Campbell), the Town Clerk (Mr. Colin Campbell), and the Bishop of Burnley (the Right Rev. E. Priestley Swain).

THE NEWS—continued.

central heating. For schools and buildings it was economy itself.

In moving a vote of thanks to Sir Francis Goodenough, the Mayor said he was sorry that that would be the last occasion they would be honoured by the presence of Councillor Witham, the Chairman of the Gas Committee, who could not see his way to continue in municipal work. For fifteen years he had given good, honest, faithful service to the town, and Burnley would be the poorer when he relinquished his office.

The Bishop of Burnley seconded the vote.

After the ceremony refreshments were provided in the Town Hall.

Brave Rescue at Burnley.

A story of the perilous rescue of an unconscious workman from a boiler containing water to a depth of several feet, the only access to which lay through a narrow manhole and between two closely-placed nests of pipes, lies behind a prosaic and official report that has just been presented to the Burnley Corporation Gas Committee.

The report, which has been made by Mr. J. H. Clegg, the Gas Engineer and Manager, draws the attention of the Committee to the splendid heroism of the men concerned, and states that their conduct is, in his opinion, worthy of commendation.

In his communication to the Committee, he states that: "About 9 a.m., a mechanic named Arthur Hall was engaged in preparing for use one of the waste-heat tubular steam boilers attached to the Sulzer plant. The boiler was, of course, cold, but contained from 4 to 5 ft. of water. The work necessitated Hall stepping inside the boiler on to the tubes. There was a second man in attendance, and after Hall had been in the boiler a short time this man, whose name is Cairns, on shouting down the manhole, was unable to obtain any response. He immediately became alarmed, and fortunately electrician J. H. Whitehead appeared on the scene and looked inside the boiler with a portable hand-lamp. After a short time Whitehead observed that Hall was lying on the bottom of the boiler. He showed sufficient presence of mind to go to the throw-off valve, which he opened, causing the water to run away from the boiler.

"In the meantime other assistance arrived and Trevor Williams, who is an assistant to the electrician, and Mr. Restall, Works Manager, entered the manhole of the boiler, which is about 8 ft. 6 in. deep, and into the water between the two nests of tubes. Between them they managed to lift Hall to the manhole from this confined space, where other helpers had in the meantime arrived, and removed him from the boiler.

"The promptitude exercised by Mr. Restall, J. H. Whitehead, and Trevor Williams undoubtedly saved Hall's life. He was taken to the hospital nearly drowned, and remained unconscious for 36 hours. He has now returned to work, and to the best of my knowledge has completely recovered."

Cheaper Buildings.

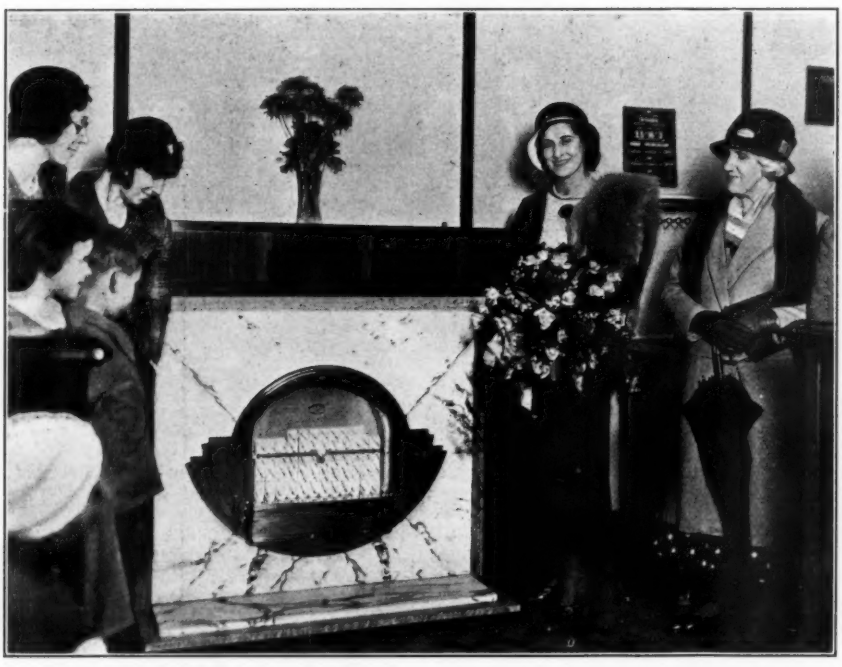
Substantial reductions in the cost of buildings have been made possible, we understand, by the perfection of a new type of brick. It has been found possible to introduce cells into the surfaces of a brick of standard size and reduce its weight by 25% while retaining its full strength.

The new product, which is known as the Phorpres Cellular brick, has been produced by the London Brick Company & Forders, Ltd., whose annual output of bricks runs into millions.

The saving in weight effected by the new brick enables the steel skeleton of a building to be lighter and therefore less costly. The cellular bricks cost no more than ordinary bricks, so that the whole advantage of the decrease in the weight resting upon the foundations is gained in reduced building costs. The saving effected naturally depends upon the type of building, but the figure ranges from 3% to 10%.

The finished wall or other structure contains a large number of pockets of still air which give an increased resistance to heat and cold, while their resistance to sound is, we are informed, approximately double that of ordinary brickwork. Another important factor is that the reduced weight and the better grip provided by the cells, make the work of bricklaying and handling easier.

North London Exhibition



The accompanying photograph shows Miss Steer, who opened the North London Exhibition, held at the Alexandra Palace, standing beside Main's "Gloria" gas fire, fitted on the stand of the Tottenham District Gas Company. This fire proved to be one of the most attractive exhibits, its pleasing design and great heating power being commented upon by all who saw it. It was one of the exhibits honoured by the notice of H.R.H. Prince George when he visited the Exhibition.

COKE OVEN MANAGERS' ASSOCIATION

Annual Dinner—Visit to Beckton

The Annual Dinner of the Association was held in the Wharncliffe Rooms, Hotel Great Central, London, on Thursday, Oct. 20. Mr. G. T. Purves, who had been elected President at the meeting in the afternoon, was in the chair, and the principal guest was Dr. W. Benton-Jones (Vice-President of the Mining Association of Great Britain, and Chairman of the South Yorkshire Coal Trade Association). An invitation to the Dinner had been accepted by Mr. Charles M. Schwab (President of the Bethlehem Steel Corporation, Pa., U.S.A.), but to the general regret he was prevented from attending through indisposition.

Mr. E. M. MYERS (Chairman of the Northern Section of the Coke Oven Managers' Association), proposing the toast of "Allied Industries," remarked that the coke oven industry was allied with the coal industry on the one hand and the iron and steel industry on the other. At the Institute of Fuel on the previous day Sir Hugo Hirst had made some distinctive remarks about the coal industry, and he did not propose to criticize these, except to say that he believed the coal owners were now realizing their responsibilities, and making the strongest efforts to prepare their coal by scientific methods and to employ technically trained people to run their plants and processes. In this connection, however, he gathered that the newly-formed Coal Utilization Council had, if newspaper reports were true, engaged a retired naval officer as Director of that Council. He felt disappointed that the Coal Utilization Council had not appointed a specialist for this work. As to the iron and steel industry, he appealed in the strongest possible terms to the iron and steel masters of this country to have the courage, the vision, and even the audacity to put the coke oven industry in its right place, so that it can compete with the coke oven industries of every other country. He claimed that the Coke Oven Managers' Association in its membership had the ability, the initiative, and the courage to give the iron and steel masters all the necessary information, and the coke oven managers were merely waiting for the word "Go." An important allied industry was the coke oven construction industry because a large percentage of the advances that had been made in the coke oven industry had been due to their efforts and their efforts alone. For that reason he took this opportunity to pay a tribute of thanks to the coke oven construction industry. In the same way, the refractory industry, through the efforts of the Ceramic Society, was assisting the coke oven managers to maintain their position, technically, in that branch of the industry. Next, there was the chemical industry generally, and especially that portion of it which depended for its raw materials, such as tar and benzole, upon the coke oven industry. Mention must also be made of the engineering industry and the Technical Press for the part they played in assisting coke oven managers to maintain their position. Last, but by no means least, there was the Gas Industry, and he had very much pleasure in coupling the toast with the name of Mr. R. E. Gibson, President of the Institution of Gas Engineers, and Chief Engineer of the Liverpool Gas Company, who had done a large amount of original work especially in connection with a fuel which was called "Dryco." Mr. Gibson was also a great worker in the cause of smoke abatement; and it was to be remembered in this connection that the Association was a member of the National Smoke Abatement Society. Might he also remind Mr. Gibson, as President of the Institution of Gas Engineers, that the Gas Industry was a sister industry to the coke oven industry and not a rival. He regarded it as a very closely allied industry to the coke oven industry.

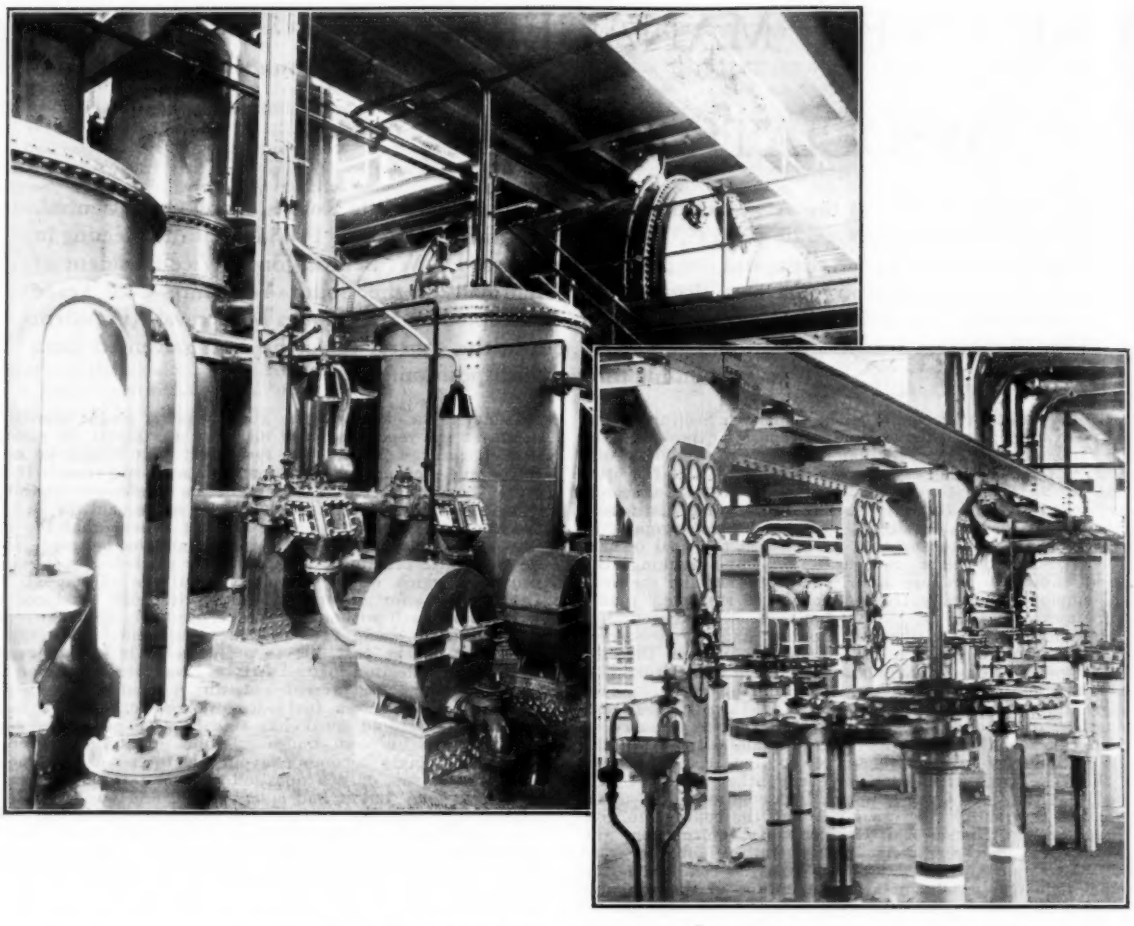
THE GAS INDUSTRY AND THE COKE OVEN INDUSTRY.

Mr. R. E. GIBSON (President of the Institution of Gas Engineers), in the course of his response, referring to the close relationship between the coke oven industry and the Gas Industry, said those engaged in the latter realized this very close relationship. There were similar methods of carbonization, practically the same products, and these products were sold in practically the same markets—sometimes. [Laughter.] There was also another link between the two industries in coke oven gas because in many districts coke oven gas was being taken by gas undertakings for town gas supply. The Gas Industry desired to co-operate with the coke oven industry as far as possible, and it would certainly far rather co-operate than be in competition. ["Hear, hear."] In one respect the Gas Industry was not so favourably situated as the coke oven industry because it was handicapped by out-of-date legislation, whereas the coke oven industry had, more or less, a free hand for which it was to be envied. Whatever industry they belonged to, however, they were dependent very largely on the coal industry, which was the parent and basic industry, and everybody must be concerned as to its welfare. The coal industry had been passing through a very critical time, and nobody could say what the future had in store. A great deal had been heard recently about the "back-to-coal" movement, but he hoped that that expression would not be misunderstood. Personally, he did not quite know what it meant himself. If it meant the replacement of oil, that was all to the good, but if it meant going back to raw coal, that would be a very retrograde step as regards domestic use at any rate. If, however, "back to coal" meant the most efficient methods of using coal, then there was everything to be said for it. From the domestic point of view he did not believe that the use of raw coal would always be tolerated, and he believed—indeed, he was quite certain—that a domestic smokeless fuel could be produced which would answer the purpose exceedingly well. In Liverpool, for instance, the smokeless fuel produced there was selling itself without any advertisement, and many people had given up using raw coal in consequence. Progress had been slow in the past due to prejudice or lack of interest, or sentimental affection for the dirty old coal fire—which no doubt even many of those present had, although in theory they supported the smokeless fuel idea without carrying it out in practice. He could speak like this because he carried out his principles in his own house. Public opinion, however, was slowly but surely becoming favourable to the use of smokeless fuel, and it was only a question of time. Ordinary gas coke was very good, but it had a bad name, and when people were offered coke they did not think it would be satisfactory. What was needed was a change of name to one which would definitely mean that it was a fuel with certain special free burning qualities which could satisfactorily be used in the domestic grate. More and more the question of fuel was becoming one of selling heat units, and it was along these lines that it was necessary to proceed in the future.

LOW-TEMPERATURE CARBONIZATION.

Dr. W. BENTON-JONES (Vice-President, Mining Association of Great Britain) proposed "The Coke Oven Managers' Association." Referring to low-temperature carbonization, he said he did not wish to speak disparagingly of it, but a few weeks ago he attended a luncheon at which an address was given to a large body of commercial people in Sheffield, including many coal owners, by a gentleman who was interested in pushing one of the numerous forms of low-temperature carbonization. That gentleman "slanged" the coal mining industry for the space of half an hour because it had missed its opportunities in the past. It was said that when gas was first introduced for the purpose of domestic lighting and other things, the coal industry missed a grand opportunity of placing itself in the position of being able to exploit the use of gas; that when the railways were introduced the coal mining industry lost an opportunity of co-operation with them; that when electricity was introduced the backward and slothful coal mining industry failed to grasp its opportunities, and, lastly, during the last few years when new processes of low-temperature carbonization had been put forward the coal industry had again allowed something to slip out of its grasp. His own view was that low-temperature carbonization had its uses, and it might very well be adopted on a large scale in the future. Some coal owners were interested in it and would use it, but the real reason why the coal mining industry had not exploited this "new" process was that in the districts in which coal suitable for carbonization was produced the coal owners had their hands fully occupied in exploiting and developing the high-temperature process. Moreover, whereas in the high-temperature process the coal owners were producing a fuel for which they had no other substitute, in the low-temperature process, if they adopted it, they were merely displacing a fuel which they already supplied. The point was that the high-temperature process was one which had been developed over a large number of years, and the coke oven managers and their collaborators, the designers of coke ovens and the builders, were to be congratulated on the state of perfection to which they had raised the high-temperature carbonization process. Other ideas had been promulgated from time to time as to how the coal mining industry could be saved. There was pulverized fuel, hydrogenation, and colloidal fuel, but it always seemed to be overlooked that if any of these processes were to be developed they would require the investment of a large amount of capital and the development of a technique for which those concerned would require a return on a larger scale than the return now being obtained in the coal industry.

Before leaving coal, he would like to say a few words about the quota. It had been said that the quota had had a bad



Views of the Benzole Recovery Plant (Active Carbon Process) inspected by members of the Coke Oven Managers' Association during their visit to the Beckton Works of the Gas Light and Coke Company on Friday last.

influence on the coke industry because it might have the effect of not rendering available when it was required the quantity of coal which would give industry the coke required. The quota, however, did not really affect the quantity of coal produced, and it did not even regulate the quantity of coal produced. What regulated the quantity of coal produced was the demand. The quota was an attempt to divide, rightly or wrongly, the demand for coal among those who were in the habit of producing it, and to prevent coal being produced spasmodically in a way that resulted in the accumulation of stocks and a depression of prices. Therefore, he suggested that the quota was not a theory or a practice which would harm the coke industry. He believed that behind the quota was the idea that those districts which produced coal not suitable for coke would give up something so that those districts in which coking coal was produced would have more to produce, at a better price. If that was the idea all he could say was that it would cause laughter in those districts which did not produce coke.

Modernization of Coke Oven Plants.

It was probable that in the near future there would be a considerable amount of modernization of coking plants taking place in this country, and if that were so this modernization should be pursued according to some common and agreed policy, but in arriving at that policy there were two points which should be borne in mind. One was the location of the coking plants and the other was the size of the coking plant. The Coke Oven Managers' Association, in its wisdom, had arrived at what was called the economic coking unit which, he understood, meant that if a coking unit was made less than a certain size it was not, theoretically economic. On the question of the location of coking plant, there were a large number of isolated plants not connected with steel works. At these plants there was a large quantity of surplus blast-furnace gas which would supply the heat required by these units, but there was no place for a coke oven plant. On the other hand, there were iron and steel works which were sufficiently large to make full use of a coking plant because they were able to use all the gas which an economic unit of the coking plant could use. If, in order to make use of the gas made at those works where a coke oven plant could not be installed, a plant was installed at some central situation it would mean the collection of material from a large number of points and conveying the surplus gas to some large city willing to receive it. There would have to be housing accommodation and a large capital expenditure involved. In view of this, he suggested that smaller coking units should be installed at collieries. In that way it would be possible, at a comparatively small expenditure, to continue to carbonize coal, perhaps not economically to the last fraction, but yet at a sufficiently low cost to make it worth while.

Smaller Units.

Mr. G. T. Purves, responding, said the suggestion by Dr. Benton-Jones to use smaller coking plants was a very important one, but it had to be remembered that there were several factors which determined the size of plant. Perhaps the most important one was the cost of coal, and although he would not say that the quota had increased the price of coal, it was the fact that since the passing of the Coal Mines Act of 1930 the results had not been in favour of the coking industry. During the past ten years the quality of blast-furnace coke had vastly improved, but the question of the size of plant was largely bound up with the cost at which coke could be produced. Four or five years ago he was speaking to a body of blast-furnace managers on the question of coke, and was amazed to find how little they knew of what they wanted in regard to coke. There was very little agreement between them as to the requirements concerning size and quality, but they all agreed that they wanted cheaper coke. Since the Coal Mines Act of 1930, however, the coking industry had had to buy dearer coal because there had been a shortage of small coal, and there was no indication that that position would alter. Thus, the coking industry was faced with the problem of making cheaper coke from dearer coal. During the past five or six years the coal and coke and iron industries had made a genuine effort to collaborate. There had been a large measure of agreement as to the qualities the coke should possess, and the conditions under which the coke should be made had also been defined. These conditions were that in order to make cheap coke large units must be built. Therefore, the problem which had been suggested by Dr. Benton-Jones was a very difficult one because it cut across the efforts that had been made in recent years to reduce the price and increase the output of coke through the medium of large units. The position was one which called for the three industries to sit down and collaborate on this

matter of producing cheaper coke from dearer coal, and so far as the Coke Oven Managers' Association was concerned he promised the fullest collaboration.

Mr. R. Ray proposed "Our Guests," and expressed regret that Mr. Charles M. Schwab had been prevented from being present through indisposition.

Dr. C. H. Lander (Imperial College of Science and Technology), who responded to the toast, remarked that, being no longer connected with the Fuel Research Board, he could say in all sincerity that this was a perfectly unbiassed body, willing to help in every possible way in connection with fuel problems.

Good Work of Gas Engineers and Coke Oven Managers.

Mr. R. G. Clarry, M.P., with whose name the toast was also associated, said that, he appeared in three rôles—first, as a gas engineer, then as a politician, and finally as Chairman of the British Road Tar Association. It was very pleasing to him to hear from the President of the Institution of Gas Engineers of the very cordial relationship existing between the coke oven managers and gas engineers, which was all to the good. The "Back-to-Coal" movement had been mentioned, and he had taken a great deal of interest in it, both because his constituency was suffering very badly owing to lack of exports of coal and because of his association with the coal industry and the Road Tar Association. Actually he had rather gone a step farther than the "back-to-coal" movement which emanated from South Wales. There, he feared, they still adhered to the idea of being able in the immediate future to put raw coal under boilers and so obtain an increased consumption of coal, and also to be able to induce the Navy to revert to coal instead of oil. He, however, dissociated himself from that, because he did not believe the Navy would go back to coal, for example, until there was a very greatly improved technique in the consumption of coal. Both gas engineers and coke oven managers were doing a magnificent work for the country. They were endeavouring to make the most of our resources in respect of coal, and long ago had abandoned any rule-of-thumb methods such as existed even to-day in some industries. It was essential, therefore, that the consumer should be educated and be given every opportunity to consume fuel in the most efficient manner. It had to be visualized that if present conditions continued with the influx of oil into this country, the prosperity of this country would hang on an oil pipe line over which we should have no control whatever. Moreover, the price of oil could be put up in a day and nothing could be done with regard to it. Therefore, it was more essential than ever for those who were dealing in a scientific way with the coal resources of this country to educate the consumer in the correct way to use coal. This would in all probability have as its first effect a reduction in the consumption of coal, but the final result would be a stabilization of consumption in the future.

Mr. T. G. Watts, proposing "The Universities," said that in the 24 years he had been associated with the industry Universities had progressed very considerably in their relations with industry, and excellent work was now being done for the coal industry in such Universities as those at Sheffield and Birmingham and also at the Imperial College of Science. It would be agreed that the first report of the Midland Coke Research Committee, which was described as the *vade mecum* of the profession, was the first occasion that anybody had collected together not only the facts relating to the industry but had produced with them the causes for these facts. The Fuel Research Board, also, had been, and still was, of great assistance to the industry.

Prof. G. G. Henderson, F.R.S. (President of the Chemical Society), replying to the toast, said those responsible at the Universities realized that they must take a very definite interest in industry.

On the Friday morning, a large number of members proceeded by motor coach to the Beckton Gas-Works, at the invitation of the Governor and Directors of the Gas Light and Coke Company, for the purpose mainly of inspecting the Koppers Coke Oven Plant and the Benzole Extraction Plant. Other portions of the works were, however, also seen by the visitors, by the aid of saloon carriages travelling over part of the extensive private railway track. After the inspection luncheon was served, at which Sir David Milne-Watson presided.

THE COKE OVEN PLANT.

The plant consists of 60 Koppers twin flue combination ovens—*i.e.*, for alternative heating with producer or coal gas—and is capable of carbonizing 1200 tons of coal per day. It is equipped with coal and coke handling arrangements and mechanical producers, which are housed in a separate building near the ovens. The layout of the installation permits the extension to an ultimate capacity of 4800 tons of coal per day.

Manufacturing operations at Beckton have always been of a considerable magnitude. The works are capable of producing daily:

In horizontal retort settings	62 million c.ft. of coal gas (540 B.Th.U. per c.ft.) = 335,000 therms per day
In coke ovens	16 million c.ft. of coal gas (540 B.Th.U. per c.ft.) = 86,000 therms per day
In carburetted water gas generators. .	42 million c.ft. of gas (approximately 425 B.Th.U. per c.ft.) = 179,000 therms per day
Total gas production	120 million c.ft. (500 B.Th.U. per c ft.) = 600,000 therms.

The ovens are arranged in two batteries of 30 ovens on either side of the coal service bunker. They have an overall length of 41 ft. 10 in., a height of 14 ft. 1½ in., and an average width of 17¾ in. with a taper of 1⅝ in. from the machine side to the discharging side. Each oven holds a charge of about 16 tons, and has thus a throughput of about 20 tons of coal in 24 hours at the normal carbonizing period of 19 hours. The carbonizing period, however, can be varied in accordance with the demand for gas and the type of coke required.

The construction of the ovens embodies the latest features of oven design, such as self-sealing Woolf doors and double, brick-lined, gas offtakes. Chambers and heating flues are built of a high-grade 95% silica.

The producer plant supplying the ovens with fuel gas is housed in a separate building and consists of 9 mechanical producers of 8 ft. 6 in. internal diameter, 8 of which are in operation, while one acts as a stand-by. The 8 producers are capable of gasifying in 24 hours, 170 tons of coke breeze (below 1½ in. mesh), containing up to 30% of ash and moisture, and about 30% of material below ⅜ in. As the producers are water jacketted, they generate the steam for saturating the blast. Although the steam produced is in excess of the requirements for this purpose, the surplus cannot be used, except for the heating of bath water and lobbies, since it is of low pressure (7 lbs. per sq. in.). The producers therefore depend on extraneous sources for power.

The gas leaving the producer is cooled and washed in water scrubbers, and after passing the exhauster, is freed from tar and moisture, carried in suspension, in extractors built on the impact principle. Clean producer gas, which has a dust content of 2 to 3 grains per 100 c.ft. and a temperature of about 30° C., thus reaches the ovens. It is saturated with moisture at this temperature.

Process Results.

The coal carbonized in this plant is Durham gas coal by itself or blended with other coal according to the type of coke to be produced. The process yields per ton of coal carbonized are practically the same as those obtained in horizontal retorts—namely, 72 to 75 therms of gas (calorific value 560 to 580 B.Th.U. per c.ft. at the ovens), about 14 cwt. of coke and breeze, 8 to 10 gallons of tar, and the equivalent of 28 to 30 gallons of 10 oz. ammoniacal liquor. The fuel requirements are somewhat less than for the horizontal retort settings—viz., about 10 lbs. of ash and moisture free coke per 100 lbs. of coal. The coke breeze used in the gas producers contains about 75% of combustible matter, so that the actual fuel consumption amounts to about 13¼ lbs. per 100 lbs., or 2·7 cwt. per ton of coal. As the temperature of the waste gases leaving the regenerators is below 500° F., waste-heat boilers are an uneconomical proposition, and the above figures represent the net fuel consumption of the plant.

Purification.

The purification process follows the usual practice in gas purification, but differs in certain respects from the orthodox principles with regard to the system of liquor circulation. A portion of the virgin liquor of the coal obtained by fractional condensation, and containing 0·8 to 1·2 oz. "free" ammonia is used on the final ammonia washer to the exclusion of water. The presence of the small amount of ammonium hydrate, which has a relatively high vapour pressure, necessitates a reversal of the liquor flow in the gas outlet bays of the washer. The formation of ammonium carbonate thereby lowers the ammonia vapour pressure in the washing medium, and consequently reduces the "slip" of ammonia. As very little or no fresh water is used, a liquor of about 20 oz. strength is obtained.

Benzole Extraction Plant.

In view of certain advantages attending the extraction of benzole from coal gas by activated carbon, this process

has recently replaced the oil washing process used hitherto, after it had been tried out in a plant of 2 million c.ft. daily capacity erected at the Harrow Works of the Company in 1929. The present plant is designed for 75 million c.ft. of gas in 24 hours, and with its daily output of about 16,000 gallons of benzole is probably the largest benzole recovery plant in the world embodying the adsorption principle. The special features of the process are:

(1) The absence of a heavy fraction derived from the wash oil, where this is used, so that a light oil is obtained without distillation.

(2) The ability to remove organic sulphur compounds from the gas, whereby its sulphur content is substantially reduced.

When gas carrying adsorbable hydrocarbon vapours is brought into contact with activated carbon, the vapours in the gas are quickly and almost quantitatively adsorbed by the carbon. The adsorbed compounds are expelled with the aid of direct steam. Adsorption and distillation alternate, the cycle of operations being repeated until the adsorption efficiency of the carbon, which at first adsorbs benzole up to one-fifth of its own weight, is reduced to an unremunerative limit by the formation of polymerization products. The carbon is then taken out of the adsorber and regenerated by heating in a muffle furnace at 1100° to 1300° F., after which it can be used again.

The plant, which has been designed and erected by British Carbo-Union, Ltd., is housed in a concrete building measuring 157 ft. long by 58 ft. wide by 39 ft. high. An annexe contains the laboratory, foreman's room, lobby, and staircase. The flat roof carries a dormer fitted with louvres so as to provide adequate ventilation. The large windows fitted in the façade and back of the building admit plenty of light, which at night is supplied by electric bulbs mounted in explosion proof fittings complying, like all switches and cables used in the building, with the Mines Regulations. Numerous doors provide ready exit from all floors in the case of fire, while a number of chemical hand fire extinguishers and one powerful transportable foam-producing engine are available to deal with fires, if they should occur.

The plant comprises 8 cylindrical horizontal adsorbers, containing heating and cooling coils, and movable carbon supporting grids, operated by a special gear situated below the vessels. They are equipped with carbon charging and discharging devices, to which the carbon containers are connected by dust-proof fittings. The auxiliary plant consists of two pairs of condensers working in series, 2 preliminary and 2 final separators, 2 steam evaporators and 2 superheaters, 3 gas coolers, a set of water pumps, and an underground installation of benzole storage tanks. Facilities are provided for the transport of activated carbon, which include a hydraulic lift, rail track and special carbon trucks, while travelling cranes are available for handling parts of the plant which may require dismantling.

Operation of the Plant.

When the plant is working at full capacity, 5 adsorbers are in operation in parallel, 2 are being steamed, while 1 adsorber is in reserve or is re-charged with carbon. The gas passes through the layer of activated carbon in an upward direction until the carbon is saturated with benzole. A new adsorber is then put into operation, while the adsorber saturated with benzole is shut out. Indirect and direct steam are admitted to this adsorber and liberate the adsorbed benzole, which goes forward with steam, either direct or via steam regenerators to the condensers. In the first condenser the larger portion of the steam is brought down together with a certain portion of the benzole. This condensate goes to the preliminary separators. The benzole, which is separated from the condensate water, goes to the final separator, while the water runs to waste. The benzole and water vapour uncondensed in the first condensers is recovered in the second condensers, which is followed by final separators. The benzole leaves through a visible overflow and goes to the storage tanks, after having been metered.

When steaming is completed (after 20 to 30 minutes) rich gas is admitted again. As the carbon in the adsorber after steaming has a temperature of 215°-250° F., the gas readily removes the moisture which has been retained by the carbon. A rapid fall in temperature results, so that the carbon is soon cool enough to adsorb benzole from the gas without appreciable loss. The cooling is accelerated through the admission of cooling water to the coils. The stripped gas leaving the adsorber passes through the gas coolers, where it is cooled by direct contact with water. The periods of adsorption and steaming of the various adsorbers are staggered so that the different phases of the operation never coincide, except when the plant is working at full capacity, and then 2 adsorbers are steamed at the same time.

The Steam Supply.

As far as possible, the process steam is obtained from the two steam regenerators which extract heat from the benzole and water vapour leaving the adsorbers. They are fed with the condensate from the adsorber coils. The water space of the evaporators is connected to a De Laval type of ejector supplied with superheated steam of 200 lbs. per sq. in. pressure. A vacuum is produced above the water so that the latter generates steam even at temperatures below that of boiling water at atmospheric pressure. The steam issuing from the ejector has a pressure of 5 lbs. per sq. in., and amounts to about 0·9-0·95 ton per ton of high-pressure steam used in the De Laval jets. It is augmented by exhaust steam from the booster turbines and is used as direct steam in the adsorbers. The coils of the adsorbers are supplied with de-superheated steam of 50 to 60 lbs. pressure.

Process Results.

The coal gas contains on an average 2·5 gallons of extractable hydrocarbons per 10,000 c.ft. of gas, so that about 3¼ gallons of benzole are obtained per ton of coal carbonized. The crude spirit is nearly water-white, and contains 90 to 95% of benzene and toluene. Its specific gravity is on an average 0·8745.

A Hearty Welcome.

Sir David Milne-Watson, at the conclusion of the luncheon, first of all expressed his regret at having been unavoidably prevented from attending the annual dinner on the previous evening, and then proceeded to welcome heartily the members of the Association to Beckton. They were, he said, particularly glad to see the visitors, because it showed that there were no prejudices in regard to the methods of making gas and coke. They were all engaged in carbonizing, which was the essential link between their two great industries. There was one thing, at any rate, which this coming together ought to assist; the two industries had a common cause in combatting oil, which was being imported into this country in ever-increasing quantities for central heating and industrial uses. Surely there could be no question of rivalry here. They were the two industries which could help to beat oil; and to keep foreign oil out of the country should be their first object at present. It would be a great national disaster if this country were to become an oil consuming country. Where would be the coal industry, the coke oven industry, and the gas industry, if oil came to be regarded as essential in this country? Unfortunately, oil appealed on account of its cheapness and extreme handiness, and it was already a serious rival. The coke oven industry and the gas industry ought, therefore, to combine to do everything they could to defeat oil. Every ton of oil imported meant money going out of the country, and this they could ill afford at the present time.

It seemed to him that the coal industry were making a great mistake in adopting such a slogan as "Back to Coal." A better slogan than this was needed—one that did not suggest going backward, but something which was progressive. It would be hard to arouse enthusiasm about anything which indicated a backward movement. Another mistake was for the coal industry to regard gas and electricity as rivals. How was coal going to fight oil? By coal not being sent out in the raw state, but by being offered in the shape of gas or electricity. One could not imagine oil being turned out by raw coal in places like London, but this could be done, if they got prices down, by gas or electricity. They desired nothing more than to help the coal industry. The coke oven and the gas industries should come together as they were doing that day, and get on with the business of serving the country and the community well, by supplying coal in the form in which they could supply it for the various purposes for which heat was required.

The President (Mr. G. T. Purves), on behalf of the Coke Oven Managers' Association, thanked the Governor and Directors for the opportunity of seeing the magnificent works at Beckton, and for the generous hospitality which had been extended to them. He also thanked the staff, who had spared no pains to explain everything to the visitors. They had seen a wonderful works. Rivalry between the two great industries of gas and coke did not exist. There were many people in the coke oven industry who were brought up in the Gas Industry. He himself was an old gas man.

It is our intention to publish next week the Presidential Address which Mr. Purves delivered at the Annual Meeting of the Coke Oven Managers' Association last Thursday afternoon.

THE "JOURNAL" TECHNICAL RECORD

Which contains Reports of Meetings of Gas and Allied Associations

Institute of Fuel

Need for Research in the Coal Industry

The First Session of the Institute of Fuel's Autumn Meeting was held on Wednesday morning, Oct. 19, in the Lecture Theatre of the Institution of Electrical Engineers, Victoria Embankment, London. The President (Sir Hugo Hirst, Bart.) was in the chair. Among his supporters at the table were Mr. Charles M. Schwab (President, the Bethlehem Steel Corporation of America), to whom the Melchett Medal was presented at the Institute's Annual Dinner held in the evening, and Mr. Evan Williams (President, Mining Association of Great Britain).

PRESIDENTIAL ADDRESS

By Sir HUGO HIRST, Bart.

[EXTRACT.]

I believe that the future of the coal industry depends as much upon research as the future of any other of the great industries. I therefore seek an answer to the important question, What has the industry done in coal research? The answer is bitterly disappointing. The excellent advice given by your first President—the late Lord Melchett—has not been heeded. After emphasizing the necessity for research, he said in 1926 in his Presidential Address:

> When industry is stagnant there is every opportunity for active and vigorous minds to discover and advise new methods of production and new methods of organization. It is useless waiting till something turns up. Industrial unrest is fostered, markets are lost, and possible profits are turned into permanent losses.

To their credit, the colliery owners have done a great deal of work in connection with the safety of mines and miners' welfare, but beyond those subjects, their research work is almost a complete blank.

The Lancashire and Cheshire Coal Research Association has been in existence some thirteen years and was founded for the specific purpose of inquiry into the commercial uses of coal, and has grown from small beginnings till it employs five chemists and twice as many assistants. It is a bright spot on a black background. Dr. Lander said last year of this Association: "It was hoped that it would be a seed which would bear fruit in the direction of creating very much more general co-operation in the industry as a whole and be widely copied by other districts, but that had not occurred so far."

In March of 1931, Mr. R. A. Burrows, Vice-Chairman of Manchester Collieries, Ltd., read a paper entitled "Self-help in the Coal Industry." The Chairman at the meeting was the Lord Hyndley, and he stated: "That we had not done sufficient research in the past was a fact which no one could deny, nor could it be denied that we could learn a great deal more from research, both in the present and the future."

At that same meeting, Prof. K. N. Moss, of Birmingham University, said: "In 1926 the Mining Department of Birmingham University had built and equipped a large laboratory in order to study scientifically and on a semi-commercial scale problems connected with the dry and wet cleaning of coal, briquetting, the use of pulverized coal and washery-water clarification. Since the industry could not at that time finance whole-time research in these investigations, because their research funds were almost wholly utilized for health and safety researches, he had had to undertake routine tests in order to raise the funds to pay a research staff."

RESEARCH WORK.

The British Colliery Owners' Research Association, which should be of paramount importance to the industry, is at present a "looking on" affair—a kind of technical information bureau, without even a laboratory, although it does make a grant of about £2500 annually to the Birmingham University.

The Government Fuel Research Board is doing splendid work with the very limited funds at its disposal. Is the coal industry content to rely upon this work to keep them ahead of the world? Mr. Burrows, whose name I have already mentioned, was a member of the Fuel Research Board for three years, and he states that it was very rare indeed for any problem to be presented to the Board by anyone connected with the coal industry itself, whereas the services of the Board were constantly being called in by other industries, especially by the Gas Industry. In support of Mr. Burrows' criticisms, Mr. E. C. Evans, Director of Research, National Federation of Iron and Steel Manufacturers, said: "It was rather a paradox that in this country, which had been a pioneer in research into coal and fuel technology generally, the coal industry itself had no schemes of collective research."

It is evident that the industry as a whole is entirely lacking in imagination on this vital question, and it is pitiable to see it looking at lost trade and inviting assistance of a kind that would actually put back the hands of the clock. It is quite useless for coal owners to beseech Parliament to revert to the use of coal in warships. The space occupied by coal for an equal cruising range is 60 per cent. greater than for oil. A battleship's bunkers can be filled with oil in a matter of hours while it requires days to fill a bunker with coal. Oil can be largely stored in ballast tanks, and as a battleship is always congested its designer has, when oil is used, a much greater flexibility and can install more machinery, armament, and magazine capacity, thus creating a much more efficient fighting unit. We cannot afford to sacrifice the efficiency of national defence units at the plea of any sectional interests.

The scope for research in the coal industry is unlimited. Take, for example, our domestic supply of coal. In spite of an increasing population and a higher standard of living, this trade remains stationary because electricity and gas are displacing the direct use of coal. In this competition the fight put up for coal is insignificant. Had the domestic consumption remained constant per head of the population since 1913, there would have been an increase in the sales of 3¼ million tons in 1930. Electricity threatened to oust gas for street lighting purposes, and gas undertakings replied by developing high-pressure incandescent methods which have kept gas to the front and given them contracts for fifteen years.

LIQUID FUEL.

A still better illustration is to be found in the use of liquid fuel which is displacing coal to a really serious extent. Starting with crude oil, which is a nasty smelly liquid not even fit, on account of its volatile content, for direct burning, the various oil companies have refined it into a valuable series of fuels and lubricants suited to the most exacting demands. In other words, they have *made* their industry and by unstinted research have placed it in an impregnable position. The fuel oil used in Great Britain in 1930 reached 365 million gallons, equivalent in thermal value of 2·3 million tons of coal.

Suppose electricity and oil fuel had been in general use before coal had been discovered. What a splendid prospectus could have been written for a company intending to exploit coal! Look at these figures for the relative cost of heat units:

With 12,500 B.Th.U.	coke at 40s. per ton	—relative cost	1
,, 13,500	,,	coal ,, 45s.	,,	,,	1
,, 19,000	,,	oil ,, 95s.	,,	,,	1·3
,, 14,000	,,	anthracite at 75s. per ton		,,	1·5
,, Electricity at 1d. per unit				,,	8·5

and we may add to this list gas, at 10d. per therm, with a relative cost of 3·7.

How one could dwell on the advantages of coal as regards transport, handling, and storage. Coal can be stored with safety in a back-yard and need not even be protected from the weather. Then there is the cheerfulness of a coal fire and the health effect due to ventilation.

If only the coal industry had from early days taken in

hand the scientific use of coal, what an entirely different state of affairs might exist to-day! Instead of permitting that cast-iron device called a common domestic grate to establish itself all over the country and become responsible, along with our industrial uses of coal, for the emission of 9 million tons of smoke, which costs the country some £80,000,000 each year to counteract its evil effects, we should have had a real effort to establish only such fuel burning devices as consume their own smoke.

Grates, stoves, and cookers for domestic use have been designed which are not only more economical but several times as efficient as the ordinary types, yet I cannot find that the coal industry has interested itself in this work, nor is there anybody within its confines to advise the public on such matters or to issue certificates of authoritative tests which the public can accept. A little work on grates which consume their own smoke is being done by the Fuel Research Board, but not at the request of the coal industry.

The Department of Scientific and Industrial Research gives a list of Research Associations. It even includes one for boots and shoes and another for the jam trade, but not one connected with the coal industry.

In a book published by the Institute, there occurs this statement: "Until comparatively recently, and now only in the minority of instances, little or no attempt has been made to sell coal as distinct from offering it for sale. . . . It is not sufficient to-day to expose oneself to business, one must very definitely go out after it. One does not see the story of coal told, its very real advantages put forward, its excellent selling points hammered home, as one does the story of gas and electricity."

Surely it is time to end this state of affairs. May I plead that in the interests of the coal industry and the nation, a really powerful organization be formed to undertake research and to deal authoritatively with all matters relating to the preparation of coal for the market, and its known uses and those yet to be discovered. One-fifth of a penny on each ton of coal raised would provide £200,000 a year, and I contend that such a sum could profitably be spent on such important work.

A Higher Technical Level.

Such an organization as I visualize would raise the coal industry to a technical level hitherto not imagined.

Only a comparatively few years ago, the hydrogenation of coal was unknown. It was not the coal owners but the largest chemical firm in this country which spent a very large sum in developing a practical and commercial method of producing petrol from coal. A scheme has been submitted to the Government to erect a works to hydrogenate 1000 tons of coal a day and produce 620 tons of high grade petrol. This can be done for an all-in cost of 7d. per gallon, and among the advantages of the scheme are more employment, national security ensured by a home supply of petrol in case of war, a better trade balance and, what most concerns the coal industry, an entirely new market for coal.

A few coal owners have examined the scheme and have become warm-hearted supporters, but the majority of them hardly know what "hydrogenation" means. If ever there was a scheme which the whole industry should support, it is surely this one, but there is no central technical organization to deal with it and to pronounce upon its merits.

The extent to which our country, both for military and civil transport, is becoming dependent on imported fuel is a very serious matter, especially in view of the mechanization of the large units of the Army.

In your first Presidential Address, you were told that the Report of the Coal Commission recommended that "the development of electricity supply under the new proposals of the Government should be closely co-ordinated with the generation of electricity at the mines." What steps has the coal industry taken in that connection? Has the industry ever studied the commercial possibilities of converting coal into gas at the mines and distributing it under pressure throughout large industrial districts? We have seen an Area Gas Committee to consider the distribution of surplus coke oven gas, but the coal industry could better that scheme by the direct and complete gasification of coal into water gas. It would be cheaper and the storage problem would disappear, but only a careful study could predict its financial value.

Who knows what intensive research on coal will discover in the future? Quite recently hydrogenation was not dreamed of; so what discovery of equal or greater importance may not be forthcoming?

Not only is the time ripe for the establishment of a Research Association, but the desperate condition of the coal industry demands it. It is a necessary measure already too long delayed, and will add a dignity and unity to the industry which hitherto it has not enjoyed.

Iron and Steel Industry.

The steel industry has shown a better conception of its responsibilities under adverse conditions than has the coal industry, and, considering its financial position, has done more in the way of research and plant improvement. Moreover, in the last few years important amalgamations have been brought about. Some of these which associated dissimilar production have not been very successful, but, generally speaking, only good can come from wise amalgamations from which important re-organizations will follow.

"The Financial News" of June 2, in commenting on the policy of co-operation between United Steel Companies and Stewarts & Lloyds, says: "Not only has new plant to be installed but old plant has to be written off. New beginnings cannot be made without painful resolutions to scrap what is obsolete both in machinery, layout, and capital values."

The degree of courage with which this implied problem is tackled will largely affect the rapidity of success and will largely determine the degree to which the capital market will respond to appeals. To what extent, if any, Government guarantee will be needed in raising the large sums necessary for re-organization, will depend on the wise direction of those responsible for such schemes; but it is to be hoped that a good push-off will not be lacking in Government support if requested.

It might be advisable to visualize a national programme at an early date, for I am advised that certain broad principles should be recognized. This is a matter for the experts, but one who is intimately acquainted with the steel industry and in a position to give an impartial opinion suggests the grouping outlined below, which I reproduce as an example of a national programme.

Group I., Scotland: One Company producing pig iron, ingots, sections, plates and forgings for commercial and armament work.

Group II., England: East Coast Group. One Company similar to Group I.

Group III., England: West Coast Group. One Company producing pig iron, ingots, sections, plates, &c., for commercial use.

Group IV., England: South Midland Group. One Company similar to Group III, and including tube billets, unless the tube trade decides on building its own steelworks. This Group would not be as large as Groups I., II., or III.

Group V., Wales: One Company similar to Group IV.

Group VI., Sheffield Group: Three Companies:

(1) Producing carbon and low alloy steels for forgings (commercial and armament work), railway materials and stampings.

(2) Producing special steels of the stainless and heat-resisting classes, with a special mill for rolling sections, &c.

(3) Producing tools, &c.

The furnaces in the Sheffield Group would be chiefly acid or electric and therefore need not be near blast furnaces as required in Groups I. to V.

For the scheme suggested certain new plants would be required, and rationalism would have to follow on different lines—*i.e.*, by groups and not by works, as at present.

The policy of our Government should be directed to national prosperity, and since industry is the basis of prosperity it follows that policy and industry must be more and more correlated if we are to make the best of our possibilities. All the more is this so, since no industry can be safely conducted without full regard being paid to the corresponding industrial activities in other countries.

International industrial relations and agreements must inevitably play a more and more important part in the future, and if soundly established will do much for the stability and contentment of the world.

Our Government has raised fresh hopes in the steel industry by its recent actions, and there is good reason to believe that it will continue to give the kind of help that is valuable, but at all costs we must avoid such interference as has been introduced into the coal industry. Captain H. Macmillan, M.P., who has probably devoted more consideration to this subject than anyone else, has expressed what to me appear very sound views.

He points out that the best experts for directing an industry are found within the industry itself, and if there are added the experts of the associated scientific and technical institutions, the pool contains the best brains for direction and control. He suggests that the Government should assist in a comprehensive organization scheme to bring about the following results:

The creation of an "Investment and Development Board" intended to synchronize and relate political, industrial, and financial policy. This Board would be constituted from national councils representing each industry

or group of industries, from an association of bankers and with Government representation through the Tariff Advisory Committee.

Its purview would be world-wide and it would promote:

Scientific protection by tariff.

Better balance of trade.

The levelling up of prices until they reach a remunerative basis of production.

The encouragement of capital expenditure for industrial expenditure on approved lines.

The discouragement of over-production and inadvisable capital outlay.

The stabilization of the employment of capital and labour in industry.

The closer unity of the Empire.

It would advise the Government on all industrial questions and would in turn receive Government advice and assistance.

We have been living in times when changes have come upon us in such rapid and bewildering succession that we have been powerless to evolve remedies to meet them. It is only now that we begin to see daylight through the maze of difficulties and to understand what further united efforts are necessary to restore our industry to that state of prosperity and stability which we all so much desire. I appeal to you, gentlemen, and to the public at large, to get clear ideas of what is needed and to do your best to avoid mistakes at this important juncture in our history.

Vote of Thanks.

Mr. Charles M. Schwab proposed a vote of thanks to the President for his Address, which he described as one of remarkable value and intelligence. When a man of the President's wide experience and success in life, he said, gave his effort to work of this kind, he ought to receive the commendation not only of all the members of the Institute, but of every industrialist in the nation.

Mr. Schwab then took the opportunity to address the meeting on his own behalf. In appearing before this gathering, he said he had the feeling of a home-coming. It was with great humility, as well as with great gratitude, that he was a guest of honour that day. The steel industry in America had made vast strides in the utilization of fuel, in the application of science to methods of production. America appreciated the recognition of this progress which was implied in the gracious tribute to an American citizen. Justice compelled him to say, however, that the steel industry in America continued to bow to Great Britain in many aspects of scientific leadership. The Societies in Great Britain had a thoroughness, a high standard of operation, a "know-how," which formed a measuring rod for industrial progress in all countries. Every great process in the manufacture of steel had come out of Great Britain. America had helped Great Britain in many respects but, with Bessemer, Martin, and various other people, the inception of great steel enterprise had originated in Great Britain.

Mr. Evans Williams seconded the vote of thanks to the President.

ANNUAL DINNER.

The Sixth Annual Dinner, Dance, and Cabaret took place in the Connaught Rooms on Wednesday—Sir Hugo Hirst, Bart., in the chair. The guest of the evening was Mr. Charles M. Schwab. Among the large gathering were Sir David Milne-Watson, Mr. Frank P. Tarratt (Vice-President of the Institution of Gas Engineers), Sir Francis Goodenough, and Dr. F. S. Sinnatt (Director of Fuel Research).

Mr. Charles Mitchell (Chairman of Messrs. Dorman, Long, & Co., Ltd.) proposing "The Fuel Industries," said he felt he was proposing the toast of national prosperity. When the fuel industries were doing well, the fuel-consuming industries were, as a rule, prosperous and to some degree figures of coal production in Great Britain were a barometer of national prosperity. He said "to some degree" advisedly, because an examination of the figures of coal production and utilization in the pre-war and post-war periods were of considerable significance in that they indicated a national trend of development which needs to be taken seriously into consideration in relation to the possibilities of increasing the prosperity of our fuel industries. Leaving out the years 1930 and 1931, which were altogether abnormal, the total coal consumption in Great Britain in 1929 was only 5½% less than it was in 1913, a year in which the coal industry was extremely prosperous. Between 1913 and 1930 the coal consumption in the Gas Industry actually increased and the coal consumption in the electrical industry nearly doubled itself.

Under post-war conditions the distribution as well as the character of industrial activity in Great Britain was changing. It had been pointed out on many occasions that industry was moving south, and this was due to four causes, all of which were important from the point of view of the fuel industries; increased transport facilities due to the motor car; reduced dependence of the new industries on fuel as a major item in the cost of production; increased availability and mobility of fuel and energy rendered possible by recent developments in the gas, electricity, and oil industries; and lower rates in the new industrial areas. If the use of coal was to continue in the new industries, and to compete with imported liquid fuel, steps must be taken to make it more available either by adequate and suitable methods of preparation and utilization or by conversion into the more available forms of fuel and energy.

The Melchett Medal.

The President, responding, reiterated the conclusions he had come to in the course of his Presidential Address in the morning, and then presented the Student's Medal which was followed by the presentation of the Melchett Medal. The former was presented to Mr. Douglas M. Forbes by the President himself, while the latter was presented by Violet, Lady Melchett, to Mr. Charles M. Schwab. Before, however, asking Lady Melchett to present the Melchett Medal, the President spoke at some length upon the life and career of Mr. Schwab. Such men, he said, were known as "captains of industry," but Mr. Schwab was altogether too big for such a designation. Everything that Mr. Schwab had done had been big. The President gave a sketch of Mr. Schwab's life and work, and the manner in which he had risen to control of the Bethlehem Steel Corporation. Mr. Schwab, he said, had always prominently in his mind the interests of those to whom his work gave employment, and in a like measure with the late Lord Melchett he believed in the importance of industrial peace through a community of interests between the employer and employed. The President then asked Violet, Lady Melchett, to hand the Melchett Medal for 1932 to Mr. Schwab.

Violet, Lady Melchett, in doing so, said she felt it a great honour and privilege, knowing what a great satisfaction it would have been to the late Lord Melchett if he could have presented the medal himself, and what an equally great satisfaction it would have been to Mr. Schwab to receive the medal at the hands of the man who instituted it, and who was Founder President of the Institute.

Mr. Schwab, expressing his appreciation of the award of the medal to him, said he valued it so highly (and would continue to do so for the rest of his days) that, in spite of the difficulties of business in America at the present time, he determined to make the special trip to this country to receive it. The late Lord Melchett and his father before him had been friends of his for many years, and he could say with the greatest sincerity that he had always been treated in England and by his English friends with greater fairness than he had been in any other country in the world. Unless the United States was prosperous Great Britain could not be prosperous, and unless Great Britain was prosperous the United States could not be prosperous. The two countries must work together and stand together. So far as he was concerned, all his works, and the development that was going on, were freely open to investigation by the English steel makers; for he would always remember with gratitude the great assistance he had received in this way from his English friends in the past.

Mr. George Usher (General Manager and Director, International Combustion, Ltd.) proposed "The Visitors," coupling with the toast the name of Mr. W. L. Cooper (Commercial Attaché to the U.S. Embassy), who attended in the unavoidable absence of Mr. Andrew Mellon, the American Ambassador.

Mr. W. L. Cooper, in the course of his response, suggested that the Institute should devote at least part of its energies to encouraging the greater use of central heating plants. Speaking seriously, and referring to the reduced production and consumption of coal, he said that in years to come there would be the greatest regret not only in this country but in other countries that vast quantities of coal had been wasted in the generation only of heat, because coal should be used primarily for the production of coal tars, their derivatives, and products of use to the chemical and other industries.

Sir Philip Dawson, M.P., proposing the toast of "The President," congratulated him on the magnificent address which he had given to the Institute that day. That address was based on the principle of scientific research being essential for the prosperity of every industry, and certainly Sir Hugo Hirst had carried out this principle in connection with the electrical industry. In the same way the late Lord Melchett had applied research to the chemical industry, with the remarkably successful results that were so well known. In the same way Sir David Milne-Watson, another Past-President of the Institute, had applied research to the Gas Industry in his work with the Gas Light and Coke Company with remarkably successful results.

Manchester and District Junior Gas Association

Meeting at Garston Gas-Works, Liverpool

The Members of the Association met at the Garston Gas-Works on Oct. 15, and were received by Mr. W. Fletcher, the Works Manager. He gave the members a hearty welcome on behalf of the Chief Engineer, Mr. R. E. Gibson.

Mr. Fletcher introduced the President of the Association, Mr. H. P. Lupton.

Tea was served in the Works Recreation Room at the conclusion of the tour of the works.

The Senior Vice-President, Mr. H. B. Knowles, was presented with a gold wristlet watch to mark his term of office as President during the last Session.

Mr. KNOWLES replied in suitable terms, and then inducted Mr. Lupton as President, and handed to him his badge of office.

Mr. LUPTON (Liverpool), in his reply, referred to the honour conferred, and remarked that the Juniors had a great part to play in the Industry, and hoped they would all do what they could to bring the profession up to the highest pitch possible.

Mr. T. H. WILLIAMS (Crewe) moved a vote of thanks to the Liverpool Gas Company for their hospitality and permission to view the works.

Mr. J. CARR (Stretford) seconded, and said that the Chief Engineer had paid them a high compliment by being present, not only in supporting Mr. Lupton but also as representing the Institution of Gas Engineers as the President of the Institution.

Mr. R. E. GIBSON, Chief Engineer, replied on behalf of the Company. He expressed his pleasure at meeting the Juniors again, and remarked upon the fact that, while he was President of the Institution, their member Mr. Lupton, was President of the Manchester Juniors. Thus the Liverpool Gas Company had two Presidents to their credit. He mentioned the Education Scheme of the Institution and the good work that was being done, and thought that the Manchester Juniors had supported the Scheme very well. He also referred to the work done by the Lancashire District Education Committee and their Secretary, Mr. Alsop, who was also the Secretary of the Lancashire District Gas Education Committee.

The death of Mr. C. E. Teasdale, a Past-President, was announced, and the members paid silent tribute to his memory.

INCREASED MEMBERSHIP.

The Annual Report was read by the Secretary (Mr. J. Alsop), which showed that there were 277 members on the books, including 5 hon. members—an increase of 2 on last year.

The Lancashire District Education Committee were thanked for their services during the session. The Committee is composed of Mr. W. J. Smith, Chairman; Messrs. C. H. Creasey, H.M.I., W. Buckley, R. H. Williams, W. H. Battersby, F. B. Small, H. C. Applebee, and J. Alsop, Hon. Secretary. Mr. P. H. Christian is a co-opted member representing the Gas Salesmen's Circle.

The Treasurer's statement of account was presented and adopted.

ELECTION OF OFFICERS.

President.—H. P. Lupton (Liverpool).
Senior Vice-President.—H. B. Knowles (Lancaster).
Junior Vice-President.—T. H. Williams (Crewe).
Hon. Secretary.—J. Alsop (Bolton).
Assistant Hon. Secretary.—W. P. Smith (Bolton).
Hon. Treasurer.—I. H. Massey (Oldham).
Hon. Auditor.—F. A. Collier (Oldham).
Council.—J. Carr (Stretford), H. Platt (Bolton), H. H. Thomas (Liverpool), N. Partington (Oldham).

PRESIDENTIAL ADDRESS

of H. P. LUPTON, B.Sc., M.Inst.Gas E.

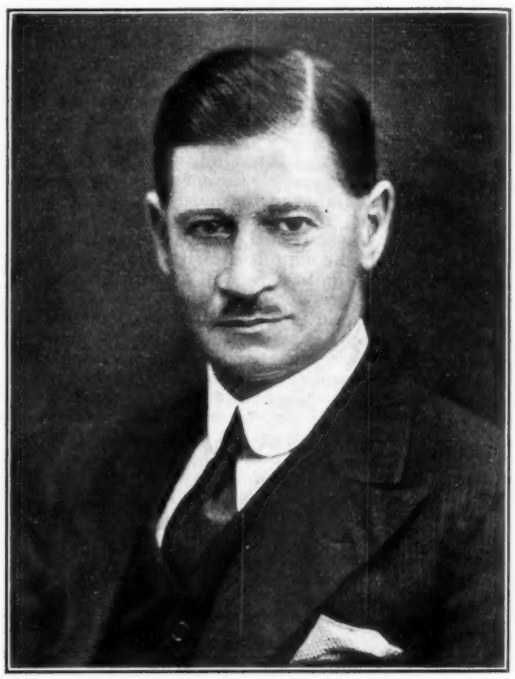
If there is one quality more than another which gas officials should possess at the present time it is the quality of enthusiasm for their profession. Enthusiasm is contagious, and so if the men of the Gas Industry have it, others will get it too. Juniors, in particular, have every cause to be enthusiastic, for where can a more interesting profession be found than that in which we are employed? From the intake of coal to the works, to the final burning of the gas at the consumer's appliance there is endless opportunity for the junior. The whole process is alive with possibilities, while the success already attending the correct application of gas to many heat-requiring processes should bring a blush of pride to the face of any junior whose heart and soul is in his work.

Right at the commencement of this address I should point out how necessary it is that juniors should keep in touch with our Technical Press, and that those juniors who hope, sooner or later, to obtain the Diploma of the Institution should quietly but diligently go through the articles which have appeared in that Press during the past ten years. Numerous students have informed me that information which would enable them to answer many of the questions set by the Institution in the Higher and Diploma examinations is quite unavailable. Hard work among the issues of the Technical Press would have shown them that by carefully extracting papers read at the Institution meetings or at meetings of the District Senior and Junior Associations the desired information would have become available.

Although there has been widespread depression in trade during the past few years, though there has been equally widespread boosting of the electrical industry by political interests, the sale of gas has not only been maintained, but has actually been increased. The following figures for total output of gas in the British Isles, as published in the official reports, clearly proves this point:

1902	159,500 million	c.ft.
1917	235,297 ,,	,,
1925	294,756 ,,	,,
1929	321,716 ,,	,,
1931	331,610 ,,	,,

It must also be remembered that, although the National Gas Council and the Institution are strenuously at work,



THE PRESIDENT,
H. P. LUPTON, B.Sc., A.I.C.

Mr. Lupton was educated at Burnley Grammar School; and after a pupilship of three years' duration under the late Mr. J. P. Leather was appointed Junior Assistant Engineer at the Burnley Corporation Gas-Works. Later he won the Burnley Corporation Science Scholarship, and used this to take the Degree Course in Gas Engineering at Leeds University. The course was broken by the outbreak of war. Mr. Lupton served first in the Special Corps, Royal Engineers, and secondly as an officer in the R.G.A. After being wounded, and then discharged from the Army, he returned to Leeds University, and obtained the B.Sc. degree. He was then appointed to the Liverpool Gas Company as Chemical Supervisor. While with this Company he became an A.I.C., also obtaining a First Class Diploma, with Distinction, of the Institution of Gas Engineers. For a number of years Mr. Lupton has been a teacher in Gas Engineering and Gas Supply at the Central Technical School; and during the past two years he has taught a Diploma Class of twelve students.

the Industry is still handicapped by antiquated legislation, whereas its chief competitor has received almost a free hand. A point well worth noting, however, is the fact that the investing public displays continued confidence in the Gas Industry and that all applications for new capital are readily responded to and the issues are always over-subscribed.

It should also be remembered that modern domestic appliances have greatly improved efficiencies, and that where old appliances have been changed for modern ones distinct economy in the consumption of gas has resulted.

Points a Junior Should Watch.

The delivery of coal may vary in size, in moisture content, and in ash content. It may also vary in its behaviour under heat—that is, its agglutinating value may change. Where possible it is advisable to carbonize only one class of coal, for then conditions in the retort house can be stabilized. If more than one class is being received, and each has to be carbonized, the proportions of each class should be as constant as possible. I have known a sudden change of coal, from a quick carbonizing, clean coal, to a slow carbonizing and comparatively dirty coal, throw the routine of the retort house completely out of gear, the furnace fires becoming poor, the heats going down, and the charges being incompletely burnt off. A change back, after conditions had been adjusted, resulted in too high temperatures in the setting and over-carbonized charges. Watch very carefully your coal supplies to the retort house.

In regard to the agglutinating value, I have found that it is an instructive and useful task to set aside the charge from a given retort and, after carefully quenching, to estimate the percentage of breeze and the resistance of the remaining coke to a shatter test. If the plant can be worked—and it generally can be so worked once in a way—that a definite coal is charged, the breeze and shatter tests are even more informative. By these tests it is possible to improve the coke yield, either by cutting out altogether a coal which gives a weak coke, or by blending the weak coke-producing coal with a coal which produces a strong coke.

Production of Domestic Coke.

In view of the potential market for a suitable domestic smokeless fuel, this method of blending suitable coals is highly important. After a considerable amount of work a satisfactory blending plant has been erected at the Eccles Street Station of the Liverpool Gas Company and a fuel very suitable for domestic grates is now being produced. No fuel for this domestic consumption can be satisfactory which contains a high moisture and ash content or which is not graded to the correct size. At Liverpool the coals used for blending have a low ash content, while the carbonized product is dry-cooled in a Sulzer plant. The cooled material is then broken and carefully screened. Laboratory tests show that a 1½-in. size was the most suitable for the usual type of grate. This has been confirmed on the district, for when, owing to a misunderstanding, a consignment of the next lower size was sent out, complaints were immediately received of a fall-off in the quality of the "Dryco." The junior will find that a careful watch kept upon the moisture content and size of his domestic coke will soon repay his undertaking for his attention.

A change in agglutinating value can have a marked effect upon the working of verticals, influencing very considerably the effect of steaming and the throughput of the retort. In this connection the junior will be well repaid by a study of the recent Presidential Address of E. B. Tomlinson ["Journal" for March 16, 1932], in which, among many important matters, the necessity is shown of maintaining the most economical balance between therms per ton of coal and therms per retort.

In the retort house, prompt performance of the details of the routine work is essential. A close watch should be kept upon the pressure conditions in the carbonizing plant, and governors and all gauges should be periodically overhauled.

Waste-Heat Boilers.

Many works have now installed waste-heat boilers. The junior should see that the composition of the waste-gases is satisfactory, since the quality of these gases can make a big difference to the performance of the boiler. A junior once consulted me about the unsatisfactory steaming of his waste-heat boiler. I asked him what was the CO_2 content of the waste gases. He did not know. I advised him to find out. He did. I then told him to look for leaks. Some time afterwards I heard that the CO_2 figure had been greatly improved and that the boiler was giving satisfactory results.

Are we, as juniors, doing all we can to recover waste-heat or to prevent the loss of heat? Do we pay sufficient attention to the condenser plant? Are we familiar with our electrical plant? If not, we should become so. Can we tell if there are any earths on the lines?

What about the washing plant? Do we ever see what pressure each particular plant is throwing, and do we carefully watch the gas temperature? If there is a brush washer and we have naphthalene in the gas and traces of tar-fog are going forward, the washer may become less efficient. Pressure readings will give an indication of approaching trouble. Are we keen enough about our plant to know the latest development for the removal of tar-fog? The electrostatic de-tarrer gives an optically clear gas.

The quantity of ammonia which is passing to the purifiers plays a very important part in the working of the boxes. Do we keep a careful watch on this ammonia? A slight change in atmospheric temperature or a change in the washing-water temperature can soon alter the number of grains to a very considerable extent. The proposal to use the first two bays of the clean water end of the rotary washer solely for the removal of any remaining ammonia and letting this flush water run to waste works very well. By this means the strength of the liquor is improved, and better control of the ammonia to purifiers can be secured.

Liquor Disposal.

During recent years the problem of liquor and its disposal has been a serious one for most gas undertakings. At Liverpool we attacked the problem by first ceasing to convert the fixed salts into sulphate. We then determined to try to strengthen the liquor. To do this it was decided to divert from the main liquor well the liquor which condensed in the hydraulics and foul main and was of very low strength but of a considerable volume. But where had this weak liquor to go? Before any actual alteration was made we tried the effect of a dilute liquor solution on red-hot coke. For this purpose the quantity of water evaporated during the quenching of coke was determined. To the quenching water circulation system, which is situated below the retort house floor, a quantity of liquor was added in such an amount as to yield a solution containing 0·4 p.ct. of ammonia. This liquid was then used for quenching. The atmosphere around the retort house became slightly phenolic in smell and traces of ammonia could be detected, but the smell was not objectionable. The surface of the quenched coke showed a darker appearance than was usual, but when the coke was broken up the discoloration was not very noticeable. Following this trial, the overflows from hydraulics and the condensation from the foul mains were turned into the quenching water system. As a result of this and one or two other slight changes, the liquor output of equivalent 10-oz. strength fell from 28 gallons per ton to 12·5 gallons. A further change resulted in the liquor tanks becoming so empty that the pumps refused to lift. At this stage a better offer for liquor was received and some of the more drastic arrangements for liquor disposal were stopped. It should be mentioned that most of the coke quenched by the above method was later used in a C.W.G. plant. It should also be noted that in the latest annual Report of the Chief Alkali Inspector it is stated that "No method for the destruction of raw liquor hitherto evolved can be described as satisfactory. Not only are such methods wasteful, but they nearly all lead to increased atmospheric pollution."

Oxide purification is a highly important process and will repay the junior for considerable care. For satisfactory working a careful record of temperatures, pressures, times of rotation, and history of the oxide is essential. All juniors should read the recent paper on oxide purification by Mr. Clayton and his co-workers. ["Journal" for April 11, 1932.] From this paper it will be seen that by correct working it should be possible to bring up the sulphur content of the spent oxide to at least 50 p.ct. in not more than two handlings.

After the purifiers many works have now installed a naphthalene washing plant. A point well worth watching in this plant is to see that water does not accumulate. A further point to watch is that the quantity of wash-oil used is a minimum. Should more than this amount be used, aromatic hydrocarbons will be removed from the gas, and these will be lost when the spent oil comes to be used in the C.W.G. plant.

Many juniors have not yet had experience of dry-gas plants, but the general working principles and the advantages claimed for the process should be known.

In the meter house there does not seem to be much to watch, but if the meter is of the drum type, juniors should see that the water supply is satisfactory. All works meters should be periodically checked. If the gas is corrected to 60° F. and 30 in. pressure see that the thermometer is giving a true reading. Some of these thermometers have not been corrected since the day the meter was installed. The mention of meters brings me to a very important point. Do juniors take readings of the hourly gas con-

sumption? By knowing the hourly make and the stock per hour, there can be drawn up, each day, a graph showing how the consumption varies hour by hour. When I was with another concern this was one of my duties, and I found it not only instructive, but on occasions exceedingly useful, and it once saved us from what might have been a very serious position—empty holders late at night. The paper by Dr. Thomas, read at the recent Institution meeting [" JOURNAL " for June 15, 1932], will show what a lot information can be obtained from such charts.

Until recently tankless holders were only suitable for the larger undertakings. Now a modification in design has made them available for small works.

The gas in the holder should be of uniform quality day by day, and for this purpose at least two holders are essential. In testing the calorific value of the gas, calorimeters, both for spot testing and for producing a continuous record, are now generally in use. The temperature of the test room and of the inlet water is of considerable importance, and any great divergence from normal may have a definite effect upon the calorific value obtained. To overcome this, the Gas Referees recently specified that the cold water temperature must not differ from the room temperature by more than 5° F. In one of the test rooms at Liverpool the inlet temperature to the calorimeter would, in winter, frequently be outside this limit. In an attempt to overcome this difficulty the water supply pipe was carried round the test room near to the ceiling. It was found, however, that the heat absorbed through the pipe walls was not sufficient to bring the temperature of the water up to the necessary figure. After various experiments a device was designed which made use of the heat contained in the hot water overflow from the calorimeter itself. By means of this device there is now no difficulty in fulfilling the requirements of the Referees.

Are all juniors familiar with what gas can do in the home and in industry, and can they discuss these things from a selling point of view? Are we all acquainted with the various points of superiority of gas for lighting, cooking, and heating over its closest rival?

Where the junior has contact with district work he should keep in touch with other departments of his undertaking. Some member of these departments is sure to learn of a possible opening for further business, or he may hear of the possible loss of existing consumption. Such information should be followed up at once. Useful information can frequently be obtained from people employed in other trades. Excellent leads can often be obtained through the agency of one's own friends, especially if the latter know that one is keenly interested.

Mr. H. C. APPLEBEE thanked the President for his address; and this concluded a most successful President's Day.

London and Southern District Junior Gas Association

Details from the Diary of the Distribution Department

The opening meeting of the London and Southern District Junior Gas Association was held at the Westminster Technical Institute on Friday, Oct. 21—Mr. J. HOWARD GOLDSMITH (South Suburban Gas Company) in the chair at the outset.

The ASSISTANT HON. SECRETARY (Mr. G. Gardiner, Wandsworth) read the minutes of the Annual General Business Meeting, which were duly confirmed; after which Mr. GOLDSMITH said that he had a most pleasant task in introducing their new President, Mr. Arthur Tennant, Sales Manager of the East Surrey Gas Company. They were all aware of the valuable work Mr. Tennant had done on the Association's behalf for many years, and he was sure that their choice in him as their new President would be well rewarded.

Mr. TENNANT then took the chair, and in the course of a few remarks said that he esteemed it a great honour to be elected President of this Association, and was looking forward to his year of office with much pleasure. He regarded the work of the Association as of the utmost importance to the Industry. Apart from the Institution of Gas Engineers, he thought they were the only Association in the Gas Industry that specified educational qualifications as a condition of membership. It was very gratifying to know that the membership continued to grow, and that the present number of members and associate members was no less than 408.

He took the opportunity of expressing the best thanks of the Association to Mr. J. Stuart Ker, B.Sc., Assoc.M.Inst.C.E., for the sympathy and support that he had given them during the many years in which they had been privileged to hold their Meetings at the Westminster Technical Institute. Mr. Ker would continue to be identified with them, as he had consented to become an Hon. Member of the Association. Dr. J. N. Long, D.Sc.Eng. (London), A.M.I.Mech.E., had been appointed Principal of the Westminster Technical Institute in succession to Mr. Ker, and they were fortunate in being able to continue to hold their Meetings there, and to receive the assistance of the new Principal.

MEDALLISTS.

The Silver Medal of the Institution of Gas Engineers, continued Mr. Tennant, was awarded to Mr. Walter Grogono, M.Inst.Gas E. (Chief Engineer to the Croydon Gas Company), for his paper entitled " Intermittent Vertical Chambers at Croydon," which was read before the Southern Association of Gas Engineers and Managers on Nov. 25, 1931. Mr. Grogono was a past President of the London and Southern District Junior Association, and had always had the interests of the Association at heart. They were very proud to know that he had been awarded the Silver Medal, and they offered him their heartiest congratulations.

The Bronze Medal of the Institution of Gas Engineers was awarded to Mr. E. W. B. Dunning, B.Sc., A.I.C. (Research and Training Section, Watson House, Gas Light and Coke Company), for his paper entitled " Incomplete Combustion: Its Importance, Recognition, and Prevention," which was presented to their Association on July 30, 1931. It was meritorious for members of this Association to gain both the Silver and Bronze medals of the Institution of Gas Engineers in one year.

He referred to the paper entitled " The Planning of Gas Installations to Conform with the British Standard Specification for Street Lighting," given by Mr. Frederick C. Smith, Assoc.M.Inst.Gas E., F.C.S. (Research Chemist, Gas Light and Coke Company) at the Meeting of the Association of Public Lighting Engineers, and congratulated him on preparing a work of such high standard.

They were favoured that evening in having with them Mr. R. J. Milbourne, J.P., whose offer to present the Milbourne Silver Medal for the best paper read before the Association by one of its Members or Associate Members had been gratefully accepted. His presence there was further evidence of his keen interest in the activities of this Association, and they would be pleased to know that Mr. Milbourne had consented to become a Patron of the Association. He congratulated Mr. Roy Summerson on gaining the Milbourne Silver Medal for an extract from his excellent thesis entitled " Exhausting and Governing Gas from Retorts," for which he received the Diploma in Gas Engineering, 1928. He hoped that Mr. Milbourne's kindness in presenting this Medal would be an incentive to their members to submit papers at their meetings which would add still further to the value of their transactions.

PRESIDENTIAL ADDRESS

of A. TENNANT, Sales Manager of the East Surrey Gas Company.

The district supplied by the East Surrey Gas Company covers an area of 120 square miles, which consists of the Borough of Reigate (which includes Redhill) and Dorking, together with a large number of isolated villages. In addition to the ordinary low-pressure system supplying the more concentrated districts, my Company have a system of high-pressure distribution for supplying the more scattered part of the district. There is a high-pressure main connecting the Redhill Works with the Dorking Works, and branches are taken from this to the various villages; the consumers generally being supplied direct from the high-pressure main, with a service governor for each meter. It would be impossible to supply gas throughout an area such as this by any other means on anything like an economic basis. The consumers on the high-pressure main are assured of an adequate and constant pressure of gas, and we experience no difficulty during the peak load. The high-pressure service controllers that are used are most reliable, and very little trouble is caused in consequence. Although our area is thinly populated, it comprises some of the most beautiful

residential country in Surrey, and there are indications that in the future great development will take place. One of the largest villages is fed by the high-pressure main, the pressure being reduced by a district governor, and the gas distributed in low-pressure mains. This policy could be adopted with any of the villages on the district should the development warrant it.

The policy that has been adopted in extending the mains to parts of the district where the probable consumption did not at first justify the expense has proved to be very sound, as we find from experience that where we are already established, our competitors are not meeting with the success that they anticipated. In the development of an existing district or of a new area, it is the public utility undertaking that is first able to meet the requirements of the public that achieves the greatest success. More enterprise and a bolder policy in matters relating to the extension of mains would, under present conditions, repay the undertakings concerned.

In the rural districts the personality of the Company's representative is an important factor. Every encouragement is given to those in charge of the various districts to take an active part in the life of the community; he is then able to appreciate the circumstances that have to be taken into consideration in dealing with any matters that arise. There are occasions when it is necessary to negotiate with consumers, and the peculiar knowledge that is acquired through coming in contact with them is a means of obtaining their goodwill and confidence. In the event of a meter ceasing to register, it is extremely important that the consumer's point of view should be given favourable consideration.

Meters.

Modern meters have eliminated some of the difficulties that were experienced with the older types, owing to the improvements that have been carried out by the manufacturers in the construction of the valves, diaphragms, and stuffing boxes. My Company have adopted the meters fitted with radial valves, and we find them extremely reliable. The high-capacity meter has practically superseded the " lights " and " standard " types, and it would appear that still further developments are likely to take place in the design of this type of meter. The prepayment attachment has recently been much improved, and the former compaints of " jammed meters " and leakages at the slot have been greatly reduced. There is a tendency now for the coin attachment to be fitted so that either 1s. or 1d. can be inserted by the consumer. This improvement should affect the amount of money that is placed in the meter. We find from experience that the 1d. coin meter is, in some instances, likely to produce more revenue than 1s. coin meter. An experiment was carried out by my Company some time ago by which it was proved that by changing 1d. meters to 1s. ones, the consumption was reduced; and the opposite effect was obtained when 1d. slot meter was fitted in place of 1s. The two-coin attachment obviates the necessity of changing 1s. for 1d. meters, and *vice versa*, to suit the requirements of the consumer, and a saving is thus effected to the Company in the labour that would be involved in changing them. Consumers should be encouraged to take the index of their meters regularly, but the present index is difficult for them to read, and we are looking forward to the introduction of a clearer-reading index.

The reading of the meters that is carried out for the purpose of rendering the quarterly accounts is a problem that we have to deal with. Our present policy is to employ gas-fitters for this work. Under this arrangement the normal fitting work that is usually carried out by the fitters is temporarily disorganized at a time when much extra work is being brought in by the meter inspectors themselves, in addition to the increase that normally takes place at quarter time, due to the removal of consumers from one house to another; and we have been considering the best means of overcoming this difficulty. It would appear that the solution would be the introduction of continuous meter reading, by the employment of a regular staff of meter readers. These men could be trained in the art of salesmanship, and should be able to introduce additional business.

Training of Fitters.

It is very satisfactory to know that the amount of fitting work we have in hand is more than sufficient to keep our existing staff in regular employment. This state of affairs must obtain throughout the Industry, as we experience difficulty in enlisting the services of additional competent fitters. In common with many other undertakings, it is our practice to train our own fitters by employing them from the school-leaving age. It is compulsory for these boys to attend the classes that are prescribed by the Company in both technical and practical subjects. Their training also comprises a period of service in the meter and stove shops and in the carpentry shop. All new employees are subject to a medical examination by the doctor, who is appointed by the Company.

The quality of workmanship in the Gas Industry should be of the very highest order, and care should be taken to see that the appliances and materials are in every way satisfactory. The tools that are used by the fitters should be examined periodically to see if they are up to standard. This applies in particular to the stocks and dies that are used for cutting the threads of the pipe. This matter has engaged my careful attention, and in carrying out a thorough investigation it was found that, although we were purchasing dies of a reputable make, we were unable to obtain a really satisfactory metal-to-metal joint. We found it necessary to exchange the whole of the tools, and we are now quite satisfied that our fitters are equipped with tools that will enable them to carry out their work in an efficient manner. Those firms who are engaged in the manufacture of materials and gas appliances are producing goods of a very high order, but to ensure complete reliability, undertakings should satisfy themselves of the standard of the goods by testing for soundness and quality.

The purchasing of materials is an important duty. It is our practice to invite manufacturers to submit quotations together with samples to our specification, and although it is not always advisable to accept the lowest quotation, a good deal of money can be saved by employing this policy. The manufacturers' representatives have, in my opinion, a very difficult job. It is their duty to interview the buyers of the various undertakings in their area, and I am afraid they are not always received as cordially as they might hope. Instructions have been given in my Company that all callers are to be given an interview with as little delay as possible. After all, we are sellers as well as buyers, and unless we receive those who are anxious to do business with us, how can we expect to obtain courteous treatment from our own consumers?

In my opening remarks I referred to the necessity of cultivating the Sales Department. In the past the selling has frequently been regarded as a secondary responsibility of one of the chief officers of an undertaking whose function was primarily to administer the affairs connected with another department. Those who fully appreciate the significance of the sales side of the business realize that it is a whole-time job, and if this branch is to be managed on the most efficient lines, it is necessary to have an officer in control of this section.

Apart from those who are wholly engaged in the production of sales, we have encouraged all employees of the Company to take an active part in the selling of appliances. Commission at the rate of 2½ p.ct. on the selling price of any appliance is paid to the employee who has introduced the inquiry. Staff conferences are held periodically, and all those who attend are free to express their opinions, and by this method they learn each other's points of view; frank expression of opinion is invited and encouraged, and in this way we are able to formulate the policy for selling campaigns that are put into operation.

We have carried out several successful campaigns, and have obtained a good deal of business solely as the result of the arrangements that were made to specialize in the sale of a particular appliance. Having decided to adopt a certain piece of apparatus that has been proved to be efficient, a seasonable opportunity is chosen to concentrate on the sale of it. A scheme is carefully planned so that the whole of our sales organization is centred on this one object. Special showroom displays are arranged; all advertising is concentrated on the one subject; the personnel of the sales force are trained to use their full energy in promoting the sale of the particular appliance; a special sales letter is drafted, and this is designed in the form of an individual appeal calculated to arouse the acquisitive feeling of the consumer; and an order form already prepared for signature is enclosed with the latter. These communications are sent out in batches, and are followed up by a call from a representative within a few days. A concerted effort on these lines is bound to produce sales.

We have, during the past few weeks, taken a census of the number of gas fires that are being used by the medical profession in our area, and I think you will agree that the following figures are satisfactory:

Total number of doctors in area of supply	48
,, ,, gas fires in doctors' houses . . .	198

It will be seen that the average number of gas fires in use is 4·125 per doctor. The average number of gas fires in use in nursing homes in our area is even greater.

Correspondence.

I do not think there is a more important matter connected with sales organization than the correspondence. Every letter that is sent out should be written in a manner that will cultivate the goodwill of the consumer, and every

opportunity should be taken to introduce a sales topic. The stereotyped form of letter is not worth the paper on which it is written. The formal kind of acknowledgment should be avoided. Even a communication asking for the payment of an account can be framed in a manner that is likely, not only to achieve its direct objective, but to maintain good relationship with the customer.

I regard a telephonic communication as important as a written one—or more so, because it often deals with a matter of an urgent character. Every telephone message that is received at our office is carefully recorded and filed with the correspondence after it has been dealt with. We are often reminded that prompt and courteous attention should be given to telephone calls. Special instructions have been given to the members of our staff concerning the manner of receiving calls, and we are rather proud of the service we give in this direction. Although I do not advocate the American method of telephone salesmanship, there are opportunities in the course of a conversation over the telephone of introducing the sale of an appliance.

There are many means of bringing the advantages of gas to the notice of the public, but I do not know of a better method of stimulating interest in the use of our commodity than that of arranging a local Exhibition. Although you may possess good showrooms that are well equipped, I am sure you would find that you would be well repaid by organizing an Exhibition. We have found that in addition to the publicity to be obtained, we have secured actual orders at Exhibitions sufficient to make them a profitable proposition.

Selling to the slot consumer is a subject that is worthy of consideration. In order to maintain or increase the consumption of our slot consumers we must provide them with appliances in addition to the usual cooking stove and lighting fittings. My Company have decided to install gas fires, coppers, irons, poker burners, &c., for this type of consumer, and to recover the cost of the appliances and the fixing from the rebate that is ordinarily handed back to them. We are looking forward to good results from this arrangement.

The science of selling is a fascinating subject, and its application to the peculiar conditions that exist in our own districts is a study that is worth attention. The result of sales development in the East Surrey Gas Company may be judged by the following figures, which represent the value of apparatus and fittings sold during the past few years:

	£
1927	12,978
1928	13,025
1929	16,950
1930	22,997
1931	24,547

I would like to repeat what I have often said before, that we are in business for the primary purpose of selling gas. The whole of our activities should contribute to this object. If we each do our utmost to produce, distribute, and market our commodity in an efficient manner, the future of the Industry will be even more prosperous than has been its past.

Vote of Thanks.

Mr. H. C. Sims (South Metropolitan Gas Company), the Senior Vice-President of the Association, in proposing a vote of thanks to Mr. Tennant for his Presidential Address, said that he was much interested in the East Surrey Company's methods of meeting competition in a widely scattered area. He emphasized the necessity of salesmen being able to tell consumers how much the running of any particular gas appliance would cost.

Mr. F. C. Smith (Gas Light and Coke Company), the Junior Vice-President, seconded the vote of thanks, and congratulated the Association in having Mr. Tennant to preside over their meetings during the coming session. They all knew the enormous amount of work he had done in the past, and they wished him every happiness during his year of office. He referred to one or two points in the Address, and said that he did not think anyone could stress too much the importance of efficient works control, in addition to giving excellent service to their consumers. Cheap production of gas was important, while the distribution section also had a great service to perform to ensure constant and adequate pressure; and between these departments came the chemists who examined the appliances which Mr. Tennant so ably sold to the consumers.

The President said that he was very grateful for the manner in which the vote of thanks had been proposed, seconded, and received. It was very encouraging and pleasing to him to see so many present that evening at their opening meeting.

Presentation to Retiring President.

He then made the presentation of a case of cutlery to the retiring President, Mr. Goldsmith, as a memento of his year of office. He himself had been following in Mr. Goldsmith's footsteps for many years, and he appreciated perhaps better than anyone the work that Mr. Goldsmith had put in for their Association.

Mr. Goldsmith, in returning thanks for the presentation, said that it was difficult for him adequately to express his feelings. He could assure them that he needed no token to remind him of his year of office as their President, though he was very pleased to accept this tangible memento they had so kindly given him. He had had an extremely interesting year of office, and he was in many ways sorry to have to give it up, but he could assure them that Mr. Tennant would carry on the good work. Each year their Association had been able to show something better than the preceding one, and everything pointed to the present session being even better than the last.

Mr. R. J. Milbourne was then called upon to present the Milbourne Silver Medal to Mr. Roy Summerson for the best paper read before the Association by one of its members during the previous session; and, in doing so, he said that he esteemed it a very great honour to have received an invitation to attend their gathering on that occasion, and was also very proud of the distinction they had conferred upon him in asking him to become a Patron of their Association. One could not attend a gathering of a Junior Gas Association, he said, without being considerably impressed with the zeal and enthusiasm shown by its members. Many of them, no doubt, devoted a large part of their leisure hours to the advancement of their Association and the preparation of the papers read from time to time. He had been very much impressed by the standard of the papers read before the Junior Associations, and he was only too pleased and proud to have the opportunity of offering some little token of encouragement to those members who, he trusted, would carry out their President's recommendation to produce papers which might be placed in competition for this Medal. They had had that night an excellent address from their President, containing a vast amount of useful information which would be of benefit to the Gas Industry. He had suggested that too much consideration was being paid to the technical side of the Industry and too little to the commercial side. He would say, however, that the technical side was one which required all the attention that was bestowed upon it; though the commercial side was certainly not receiving the attention it demanded, and he thought this would be recognized now that they had intensified competition to contend with. He had much pleasure in presenting to Mr. Summerson this Medal and congratulated him on the excellence of his paper.

Mr. R. Summerson said that he was greatly honoured by the award of this Medal and gratified that the Council should have deemed his paper worthy of this award. They were very encouraged by the visit of a gentleman like Mr. Milbourne and by the remarks he had just made, and he was sure that this Medal would do much to increase the already high standard of the papers from this Association.

Dr. J. N. Long, D.Sc.Eng (London), A.M.I.Mech.E., the new Principal of the Westminster Technical Institute, was invited by the President to say a few words. "I am very honoured," said Dr. Long, "in being asked into your meeting. I have not until to-night had any association with an institution of gas engineers." He invited the members of the Association to make every possible use they could of the Institute.

This terminated the meeting, and thereafter refreshments were provided in the new restaurant of the Institute.

Midland Junior Gas Association.

Visit to a Meter Works.

The Association visited the Coventry Works of Messrs. Geo. Wilson Gas Meters, Ltd., on Oct. 22, among those present, in addition to the President, Mr. F. A. C. Pykett, being Mr. P. N. Langford, Engineer and Manager to the Coventry Gas Department, Mr. H. H. Cheshire, M.B.E., Chairman of the Department, and Mr. Geo. E. Roberts, Vice-Chairman.

After inspecting the works the visitors were entertained at tea.

Mr. Pykett, in expressing the thanks of the Association, emphasized the advantage of seeing the works in full operation.

Councillors Cheshire and Roberts supported the vote of thanks proposed by Mr. Pykett.

Mr. J. H. Wilson said how pleased he was to see so many members of the Midland Junior Association, and expressed the hope of seeing them all again in number or singly, if at

any time they would like to investigate any detail of meter manufacture.

The Meter Testing Station adjoining Messrs. Wilson's works, controlled by the Markets Committee of the Coventry Corporation, was viewed in full operation.

THE STRAIGHT LINE METER.

After tea Mr. Wilson announced a special meter produced for gas engineers. This was described in the "JOURNAL" for Oct. 12, p. 152.

Councillor ORRELL moved a vote of thanks to the Markets Committee, and Mr. WILSON briefly replied.

NOTES ON PLANT AND PROCESSES

A Gas Lighting, Heating, and Cooking Catalogue.

A comprehensive catalogue of lighting, heating, and cooking appliances has recently been issued by Messrs. Lighting Trades and the Welsbach Light Company, Ltd., of 51-55, Garratt Lane, Wandsworth, S.W. 18, whose city showrooms are at 17-19, Farringdon Road, E.C. 1.

Every variety of lighting fitting is listed and illustrated with full specifications—inverted brackets, pendants, bowl fittings, panel brackets and hall lights, church and school fittings, lanterns and shades of all descriptions, larger lamps for indoor and outdoor lightings, cluster burners, street lighting conversion sets and lamp columns, wall lamps, switches, controllers, advertising signs, in fact, all kinds of gas lighting requisites and accessories.

On the heating side are illustrated the firm's portable gas fires, including the "Handiheater" model and "Kernscreen" fire, which is particularly suitable for bedroom, dining room, and lounge, its attractive appearance harmonizing with varying furnishing schemes. In winter time the "Kernscreen" is an efficient fire, while in summer it forms an effective screen for open hearths. Column radiators, burners, and other fire accessories are also listed.

The firm's new mottled gas cookers and baking ovens, together with wash-boilers, boiling rings and toasters also receive attention, while irons, soldering iron heaters, grillers, and hotplates are fully dealt with. Various types of geysers, including the "Simplex" and "New Welsbach" are illustrated, and the catalogue closes with details of a comprehensive range of miscellaneous small gas fittings, cocks, union joints, ceiling plates, anti-vibrators for lighting fittings, reflectors, mica chimneys, smoke tops, and flexible metallic tubing. The whole publication is fully indexed, while a numerical index to appliances and fittings is included.

Parliamentary Intelligence.

[From Our Special Correspondents.]

House of Lords.

Special Orders.

Special Orders proposed to be made on the application of the Bideford Gas and Coke Company, Ltd., and the Urban District Council of Spalding have been laid before the House and referred to the Special Orders Committee.

The Bath Gas Order, which was passed by the Special Orders Committee before the adjournment, is still awaiting the affirmative resolution of the House.

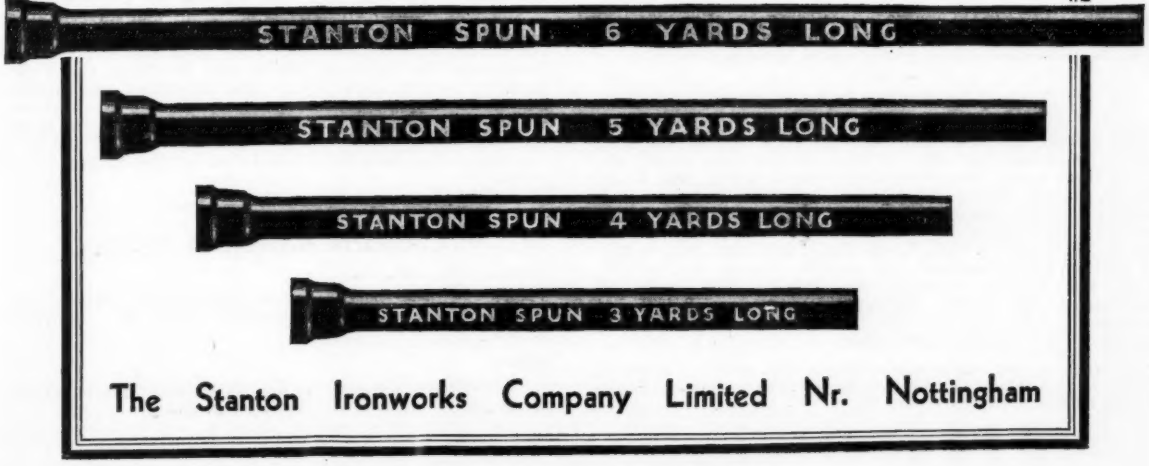
House of Commons.

Special Orders.

The following Special Orders have been presented and ordered to lie upon the Table of the House: Bideford Gas and Coke Company, Ltd., Urban District Council of Spalding.

Plans have been deposited in connection with the following Special Orders: Liverpool; Torquay; Hastings and St. Leonards; Swansea; Watford and St. Albans.

STANTON
DELAVAUD
Spun Iron Pipes
3, 4, 5 and 6 Yards Long



The Stanton Ironworks Company Limited Nr. Nottingham

GAS MARKETS & MANUFACTURES

Stock Market Report.

[For Stock and Share List, see later page.]

The new Account opened on the Stock Exchange with a fresh display of activity in nearly all markets. There were slight reactions here and there owing to profit-taking brought about by the substantial improvements which had recently taken place, but with the strong undertone prices quickly recovered any set-back. Towards the close conditions became less settled by reason of the fall in the value of the sterling exchange, and there was some decline in prices, particularly in the gilt-edged market.

The demand is so great for every kind of sound investment stock offering a slightly higher yield than that obtainable on gilt-edged securities, that Gas stocks and shares have been appealing to a much larger investing public than hitherto, the result of which can be seen in the continual upward trend of prices. Many stocks improved again last week, and among these to show the greatest increase were: Bournemouth sliding-scale with a gain of 13 points to 195; Hastings and St. Leonards, 10 points to 135; and Liverpool 4% debenture 8½ points to 96½ on the local Exchange.

The volume of business was again on the heavy side, and, judging from the transactions which have been recorded during the past week or so in those stocks rarely available, it would appear that some investors have been tempted by the present high levels to dispose of their holdings, though the reinvestment of the proceeds to give anything approaching an equivalent yield with like security must be a difficult problem at the present time.

The new 5% irredeemable debenture stock of the Commercial Gas Company is now officially quoted, and business was recorded last week at 120. It will be remembered that holders of the Company's ordinary stock have recently been given the option to exchange their holdings for the new debenture stock in the ratio of £96 5% debenture stock for £100 ordinary stock. The price of the ordinary stock is now 104½, while the value of £96 debenture stock is nearly 115¾, thus showing a substantial capital appreciation. It is understood that the offer to exchange still remains open.

New Gas issues are now appearing, and among the first of these is the issue of £850,000 4% preference stock of the South Metropolitan Gas Company which is being offered for sale by tender this week at a minimum of 101, yielding at this price £3 19s. 2d. The new stock will be irredeemable and ranks equally with the existing 6% preference stock of the Company. Another issue is that by the Mid-Southern Utility Company (formerly the Aldershot Gas, Water, and District Lighting Company) which is offering for sale by tender £60,000 5% "C" consolidated stock at a minimum price of £97 10s. per £100 stock.

Current Sales of Gas Products.

The London Market for Tar Products.

LONDON, *Oct.* 24.

There are no changes to report in the values of tar products, which are as follows:

Pitch is firm at 97s. 6d. to 100s. per ton f.o.b.

Creosote is 3½d. to 5s. per gallon f.o.b., according to specification.

Refined tar is 4d. to 4¼d per gallon in bulk at makers' works.

Pure toluole is about 2s. 7d.; pure benzole, about 1s. 11d.; 95/160 solvent naphtha, about 1s. 7½d.; and 90/140 pyridine bases, 3s. 9d. to 4s.—all per gallon naked at makers' works.

Tar and Tar Products in the Provinces.

Oct. 24.

The average prices of gas-works products during the week were: Gas-works tar, 33s. to 38s. Pitch—East Coast, 85s. f.o.b. West Coast—Manchester, Liverpool, Clyde, 85s. f.o.b.* Toluole, naked, North, 1s. 7½d. to 1s. 9d. Coal-tar crude naphtha, in bulk, North, 5½d. to 5¾d. Solvent naphtha, naked, North, 1s. 4d. to 1s. 4½d. Heavy naphtha, North, 10½d. to 11d. Creosote, *ex* works, in bulk, North, liquid and salty, 2¼d. to 2⅜d.; low gravity, 1¼d.; Scotland, 2½d. to 2⅝d. Heavy oils, in bulk, North, 4¾d. to 5¼d. Carbolic acid, 60's, 1s. 6¼d. to 1s. 7d. Naphthalene, £9 to £10. Salts, 55s. to 75s., bags included. Anthracene, "A" quality, 2½d. per minimum 40 p.ct., purely nominal; "B" quality, unsaleable.

* All prices for pitch are now quoted on the basis of f.o.b. In order to arrive at the f.a.s. value at any port it will be necessary to deduct the loading costs and the tolls whatever they may be.

Tar Products in Scotland.

GLASGOW, *Oct.* 22.

Orders are scarce and, in some cases, values have been marked down, although, in general, quotations are fairly steady.

Crude gas-works tar.—Actual value is easier at 45s. to 50s. per ton *ex* works.

Pitch.—This market remains firm, but supplies are not plentiful. Export value is nominal at 85s. to 90s. per ton f.o.b. Glasgow, while, in the home market, 90s. to 95s. per ton *ex* works continues to be quoted.

Refined tar to Ministry of Transport Specification is slow with value round 3⅜d. to 4d. per gallon in buyers' packages *ex* makers' works.

Creosote oil.—There is little or no activity, and prices are easy. B.E.S.A. Specification is 3½d. to 3¾d. per gallon; low gravity, 3¼d. to 3⅜d. per gallon; and neutral oil, 3¼d. to 3⅜d. per gallon—all *ex* works in bulk.

Cresylic acid.—Conditions remain weak with prices irregular. Pale, 97/99%, is 11½d. to 1s. per gallon; dark, 97/99%, 10d. to 11d. per gallon; and pale, 99/100%, 1s. 2d. to 1s. 3d. per gallon—all f.o.r. in buyers' packages.

Crude naphtha.—Value is unchanged at 4½d. to 5d. per gallon, according to quantity and quality.

Solvent naphtha.—90/160 grade is 1s. 2d. to 1s. 3d. per gallon, and 90/190 grade 11d. to 1s. per gallon.

Motor benzole.—While business is slow, quotations are unchanged at round 1s. 4d. to 1s. 5d. per gallon f.o.r. in bulk.

Pyridines.—90/160 grade is 3s. to 3s. 3d. per gallon, and 90/140 grade 3s. 3d. to 3s. 6d. per gallon.

Benzole Prices.

These are considered to be the market prices for benzole at the present time.

	s. d.		s. d.	
Crude benzole	0 10½	to	0 11	per gallon at works
Motor "	1 6½	"	1 7	" " "
Pure "	1 10	"	1 11	" " "

Trade Notes.

Morris-Commercials at the Scottish Show.

Visitors to the Scottish Motor Show at Glasgow (Nov. 11-19) can "kill two birds with one stone," inasmuch as they will be able to inspect practically every make of pleasure car on the market and, in addition, spend some time examining the latest commercial vehicles which are exhibited in the same building. Morris-Commercials are exhibiting five different models which embody all the latest improvements, and represent exceptional value.

Gasholder Orders.

We understand from Messrs. Saml. Cutler & Sons, Ltd., of Millwall and Westminster, that a guide-framed gasholder in steel tank has just been completed by them at Jersey several weeks before contract time, which follows their claim to have carried out in record time the erection of a spiral gasholder in steel tank at Skegness, which was fully described in our issue of Aug. 10, 1932. Messrs. Cutler are now shipping materials to the order of the Shanghai Gas Company for a spiral gasholder in steel tank to be erected in Shanghai, and have in progress a guide-framed gasholder being carried out for the Bexhill Corporation Gas Department. They have also received instructions from the Brighton, Hove, and Worthing Gas Company to carry out an extension to the important coke telpherage installation erected by them a few years ago at the Portslade Works. In addition, they have just received an order for carrying out a spiral holder in steel tank of 400,000 c.ft. capacity, including piled foundations, for the Sheppy Gas Company.

Contracts Advertised To-Day.

Cookers and Fires, &c.

The Belfast Corporation Gas Department invite tenders for the supply of cookers and heating stoves, &c. [Advert. on p. 284.]

Meters.

The Belfast Corporation Gas Department invite tenders for the supply of meters. [Advert. on p. 284.]

STOCK AND SHARE LIST.

Official Quotations on the London and Provincial Stock Exchanges.

[For Stock Market Report, see earlier pages.]

Issue.	Share.	When ex-Dividend.	Dividends. Prev. Hf. Yr.	Dividends. Last Hf. Yr.	NAME.	Quotations. Oct. 22. (Provincial Exchange Oct. 21.	Rise or Fall on Week.	Transactions. Lowest and Highest Prices During the Week.
£			% p.a.	% p.a.				
1,551,868	Stk.	Oct. 3	7⅞	7⅞	Alliance & Dublin Ord. ...	100—110	...	109—111½
374,000	,,	July 4	4	4	Do. 4 p.c. Deb. ...	80—90	...	...
557,655	,,	Aug. 22	7	7	Barnet Ord. 7 p.c.	132—142	...	139½
300,000	1	Oct. 17	1/9½	1/4½	Bombay, Ltd. ...	21/—23/-*	...	22/— 22/9
177,750	Stk.	Aug. 22	9	9½	Bournemouth sliding scale	190—200	+13	199—200
950,050	,,	,,	7	7	Do. 7 p.c. max. ...	145—155	+5	147
439,160	,,	,,	6	6	Do. 6 p.c. Pref. ...	128—133	...	...
50,000	,,	June 20	3	3	Do. 3 p.c. Deb. ...	75—80	...	...
162,025	,,	,,	4	4	Do. 4 p.c. Deb. ...	95—100	...	102
210,000	,,	,,	5	5	Do. 5 p.c. Deb. ...	120—125	...	125
857,900	,,	Aug. 22	7½	7½	Brighton, &c. 6 p.c. Con. ...	138—143	...	...
540,000	,,	,,	6½	6½	Do. 5 p.c. Con. ...	127—132	+2	129½—132
195,500	,,	,,	6	6	Do. 6 p.c. B Pref.	125—135	...	...
1,287,500	,,	Aug. 8	5	5	Bristol 5 p.c. max.	108—109[a]	+½	...
120,420	,,	June 20	4	4	Do. 1st 4 p.c. Deb. ...	94—96[a]	...	...
217,870	,,	,,	4	4	Do. 2nd 4 p.c. Deb. ...	93—95[a]	...	...
328,790	,,	,,	5	5	Do. 5 p.c. Deb.	115—120[a]	...	...
855,000	,,	Oct. 3	8	7	British Ord.	125—135*	...	131—133
100,000	,,	June 20	7	7	Do. 7 p.c. Pref.	120—130	...	...
350,000	,,	—	—	—	Do. 5½ p.c. Pref. ...	107—112	...	...
120,000	,,	,,	4	4	Do. 4 p.c. Red. Deb. ...	87—92	...	...
450,000	,,	,,	5	5	Do. 5 p.c. Red. Deb. ...	105—115	...	...
160,000	,,	July 4	5	5	Cambridge 5 p.c. Deb. ...	117—122	...	...
100,000	10	May 23	6	6	Cape Town, Ltd.	7⅞—8⅛	...	...
100,000	10	Apl. 29	4½	4½	Do. 4½ p.c. Pref. ...	6—7	...	...
150,000	Stk.	June 20	4½	4½	Do. 4½ p.c. Deb. ...	90—95	...	94½
626,860	,,	Aug. 8	6	6	Cardiff Con. Ord.	102—107	...	...
237,860	,,	July 4	2½	5	Do. 5 p.c. Red. Deb.	105—110	...	...
157,150	,,	Aug. 8	6½	5	Chester 5 p.c. Ord.	91—96[b]	...	...
98,986	1	Oct. 17	2/-	2/-	Colombo, Ltd. Ord.... ...	25/—30/-*	−1/-	27/—28/6
24,500	1	,,	1/4⅛	1/4⅛	Do. 7 p.c. Pref.	18/—20/-*	...	...
609,204	1	Oct. 17	-/10'90	-/11'47	Colonial Gas Assn. Ltd. Ord.	10/—15/-*	...	...
296,058	1	,,	1/2'54	1/3'30	Do. 8 p.c. Pref.	10/—15/-*	...	...
1,843,830	Stk.	Aug. 8	5⅞	5	Commercial Ord.	102—107	...	...
475,000	,,	June 20	3	3	Do. 3 p.c. Deb. ...	74—79	...	77⅞
220,272	,,	—	—	—	Do. 5 p.c. Deb. ...	118—123	...	120
807,560	,,	Aug. 8	7	7	Croydon sliding scale ...	137—142	+4½	139—142
469,590	,,	,,	5	5	Do. max. div.	95—100	...	98½
500,000	,,	July 4	5	5	Do. 5 p.c. Deb.	120—125	+3	122—124
542,270	,,	Aug. 8	10	7	Derby Con.	120—130[c]	...	...
55,000	,,	July 4	4	4	Do. 4 p.c. Deb.	75—85[c]	...	...
209,000	,,	Sept. 5	5	5	East Hull Ord. 5 p.c. ...	95—100	+2	...
179,500	,,	Aug. 22	5⅞	6	East Surrey Ord. 5 p.c. ...	108—118	...	...
155,019	,,	June 20	5	5	Do. 5 p.c. Deb. ...	117—122	...	...
1,002,180	,,	Sept. 19	†6½	†5	European, Ltd.	122—127	...	123—126
19,405,992	,,	Aug. 8	5⅜	5⅜	Gas Light & Coke 4 p.c. Ord.	24/—25/-f	+-/6	24/7½—25/4½
2,600,000	,,	,,	3⅜	3⅜	Do. 3½ p.c. max. ...	78—83	...	81½—83
4,477,106	,,	,,	4	4	Do. 4 p.c. Con. Pref. ...	100—103	+2	100—102
6,102,497	,,	June 20	3	3	Do. 3 p.c. Con. Deb. ...	80—83	+1	80½—82½
3,642,770	,,	,,	5	5	Do. 5 p.c. Red. Deb. ...	110—115	...	...
3,500,000	,,	,,	4½	4½	Do. 4½ p.c. Red. Deb. ...	110—114	+½	111½—112½
264,011	,,	Aug. 22	—	6	Harrogate New Cons. ...	104—109	...	...
82,500	,,	Aug. 22	7	7	Hastings & St. L. 5 p.c. Conv.	130—140	+10	...
258,740	,,	,,	5½	5½	Do. 3½ p.c. Conv.	100—105	...	...
70,000	10	Oct. 17	†10	†10	Hongkong & China, Ltd. ...	9½—10½*	−½	...
213,200	Stk.	Aug. 22	6	6	Hornsey Con. 3½ p.c. ...	112—117	...	...
5,600,000	,,	June 6	15	14	Imperial Continental Cap.	195—205	−5	197½—207
223,130	,,	Aug. 8	3½	3½	Do. 3½ p.c. Red. Deb.	90—95	+3	90⅞—93½
235,242	,,	Aug. 8	8½	8½	Lea Bridge 8 p.c. Ord. ...	142—152	...	...
2,145,907	,,	Aug. 22	6	6	Liverpool 5 p.c. Ord. ...	113—115[b]	+2	...
245,500	,,	June 20	5	5	Do. 5 p.c. Red. Pref. ...	100—110[b]	...	...
306,083	,,	July 15	4	4	Do. 4 p.c. Deb. ...	94—99[b]	+8½	...
165,786	,,	Sept. 5	10	8	Maidstone 5 p.c. Cap. ...	155—165	+5	...
56,176	,,	June 20	3	3	Do. 3 p.c. Deb. ...	69—74	+4	70—71½
76,000	5	June 20	†10	†10	Malta & Mediterranean ...	7½—8½	...	8½
892,000	—	Oct. 1	5½	5½	Metropolitan (of Melbourne) 5½ p.c. Red. Deb.	97—102	...	...
171,978	Stk.	Sept. 5	5	5	M. S. Utility "C." Cons. ...	93—97	...	...
718,657	,,	,,	4	4	Do. 4 p.c. Cons. Pref.	82—87	...	...
112,126	,,	July 4	4	4	Do. 4 p.c. Deb. ...	90—95	+3	...
148,955	,,	,,	5	5	Do. 5 p.c. Deb. ...	105—110	...	...
675,000	,,	21 May '31	†6	†6	Montevideo, Ltd.	30—50	...	...
2,061,315	,,	Aug. 8	5⅛	5	Newcastle & Gateshead Con.	21/—22/-d/	+1/-	...
582,856	,,	,,	4	4	Do. 4 p.c. Pref. ...	90½—91½[d]	...	...
691,705	,,	June 20	3½	3½	Do. 3½ p.c. Deb. ...	89—91[d]	...	...
277,285	,,	Apl. 29	5	5	Do. 5 p.c. Deb. '43 ...	105—107[d]	...	...
274,000	,,	Aug. 8	5	5	Newport (Mon.) 5 p.c. max.	91—93[a]	+5	...
199,940	,,	Aug. 22	7½	7½	North Middlesex 6 p.c. Con.	135—145	...	142½—145
396,150	,,	Aug. 8	5	5	Northampton 5 p.c. max. ...	96—101	+1	...
300,000	,,	Apl. 18	9	7	Oriental, Ltd.	85—95	...	...
205,162	,,	June 20	8	8	Plym'th & Stonehouse 5 p.c.	142—152	...	150
504,416	,,	Aug. 22	8	8	Portsm'th Con.Stk. 4 p.c.Std.	142—152	...	...
241,446	,,	,,	5	5	Do. 5 p.c. max. ...	97—102	...	...
114,000	,,	Aug. 8	5	5	Preston 5 p.c. Pref.	100—105	...	...
686,312	,,	July 18	4	4	Primitiva 4 p.c. Rd. Db. 1911	75—80	...	...
869,813	,,	June 20	4	4	Do. 4 p.c. Cons. Deb.	76—81	...	...
150,000	10	Sept. 19	6	6	San Paulo 6 p.c. Pref. ...	6⅞—7¼*	...	...
1,736,968	Stk.	Sept. 5	6	6	Sheffield Cons.	110—114[e]	...	...
95,000	,,	July 18	4	4	Do. 4 p.c. Deb.	92—96[e]	...	...
138,201	,,	Sept. 5	5	8½	Shrewsbury 5 p.c. Ord. ...	113—118	...	117½
90,000	10	June 6	15	15	South African	4—6	...	...
6,709,895	Stk.	Aug. 8	7	5	South Met. Ord.	117—122	+2	116—122
1,185,812	,,	,,	6	6	Do. 6 p.c. Irred. Pf.	138—143	+3	140—142½
1,895,445	,,	July 4	3	3	Do. 3 p.c. Deb. ...	79—82	...	81½—82
1,000,000	,,	July 18	4	5	Do. 5 p.c. Red. Deb.	109—114	...	114
91,500	,,	Aug. 8	8½	8½	South Shields Con.	134—136[d]	...	...
1,548,795	,,	Aug. 8	6	6	South Suburban Ord. 5 p.c.	113—118	...	...
800,000	,,	,,	5	5	Do. 5 p.c. Pref.	110—115	...	113
668,827	,,	June 20	5	5	Do. 5 p.c. Deb.	120—125	...	122—123½
647,740	,,	Aug. 22	5	5	Southampt'n Ord. 5 p.c. max.	93—98	...	...
121,275	,,	June 20	4	4	Do. 4 p.c. Deb.	95—100	+3	97
350,000	,,	Aug. 8	—	9/-	Swansea 5½ p.c. Red. Pref.	109—112	...	...
200,000	,,	June 20	6½	6½	Do. 6½ p.c. Red. Deb.	105—110	...	...
1,076,490	,,	Aug. 8	6½	6½	Tottenham and District Ord.	130—135	...	...
300,000	,,	,,	5½	5½	Do. 5½ p.c. Pref. ...	115—120	...	123
199,005	,,	June 20	4	4	Do. 4 p.c. Deb. ...	95—100	...	...
85,701	,,	Sept. 19	6	6	Tuscan, Ltd., 6 p.c. Red. Db.	67—72	...	...
346,069	,,	Aug. 22	7	7	Uxbridge, &c., 5 p.c. ...	130—140	+2½	...
88,330	,,	,,	5	5	Do. 5 p.c. Pref. ...	110—115	...	115
1,322,220	,,	July 4	7	7	Wandsworth Consolidated	130—140	...	...
971,378	,,	,,	5	5	Do. 5 p.c. Pref.	112—117	+2	116
1,167,964	,,	June 20	5	5	Do. 5 p.c. Deb.	120—125	...	124½
158,400	,,	Aug. 22	6g	5	Winchester W.&G.5p.c.Con.	98—103	...	...

Quotations at:—*a.*—Bristol. *b.*—Liverpool. *c.*—Nottingham. *d.*—Newcastle. *e.*—Sheffield. *f.*—The quotation is per £1 of stock. *g* Paid £3, including 10s. on account of bank dividends. * Ex. div. † Paid free of income-tax. ‡ For year.

(This announcement is inserted gratuitously.)

PETER—WITH ONE EXCEPTION

With one exception Peter is an ordinary little fellow. Chubby, likeable, just five-and-a-half, full of life and fun and on occasions—be it admitted—of naughtiness.

Just now Peter's rather important, for this is his first term at school, and he's grappling with the intricacies of "A B C" and "Twice Two": difficult subjects to all men of five-and-a-half, but even more difficult in Peter's case because—bad luck—he's totally blind. That's his One Exception.

Peter learns reading, writing, and 'rithmetic through the medium of "Braille"—dull stuff compared with the coloured picture books of most five-and-a-halfs. However, he's a stout lad is Peter, and he's making great progress.

Would you like to know more about him? How, in spite of his "One Exception," he is being educated, and, when older, technically trained and usefully employed.

There is a long waiting list of "Peters" throughout the British Isles, for whom training and accommodation must be provided in the immediate future.

Will you help with a donation or annual subscription? Any sum, large or small, will be gratefully received.

Here's a suggestion. Your eyesight is worth 3d. a year to you. Send Peter and his handicapped pals 3d. for every year you've had it. Now, please, in case it slips your memory. Good idea!

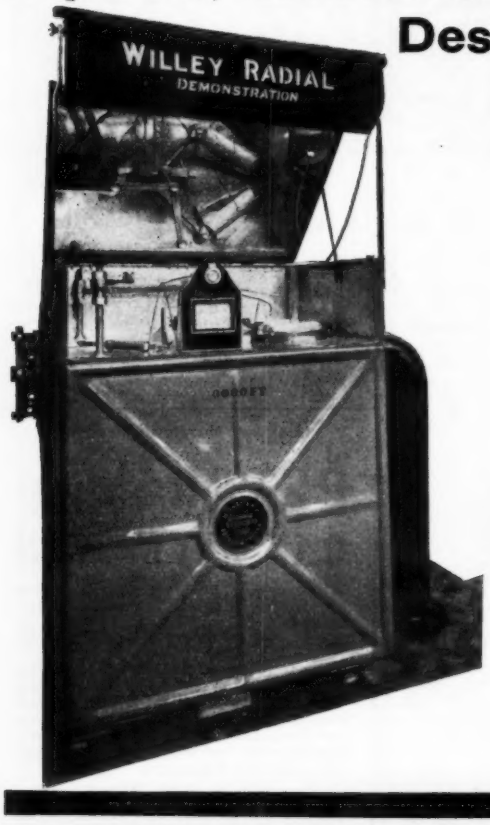
THE CHAIRMAN,

SCHOOL FOR THE BLIND

(Founded 1838).

Swiss Cottage, LONDON, N.W.3

Equable Measurement of Gas Sales is the Desire of Every Gas Engineer and upon reflection Willey Meters are built with that end in view.



We manufacture Meters to any capacity. Made throughout of best possible materials and assembled by highly skilled mechanics. Roller bearings and oil-gun lubrication, on the large meters of 700 cu. ft. per hour and upwards reduce wear to a minimum.

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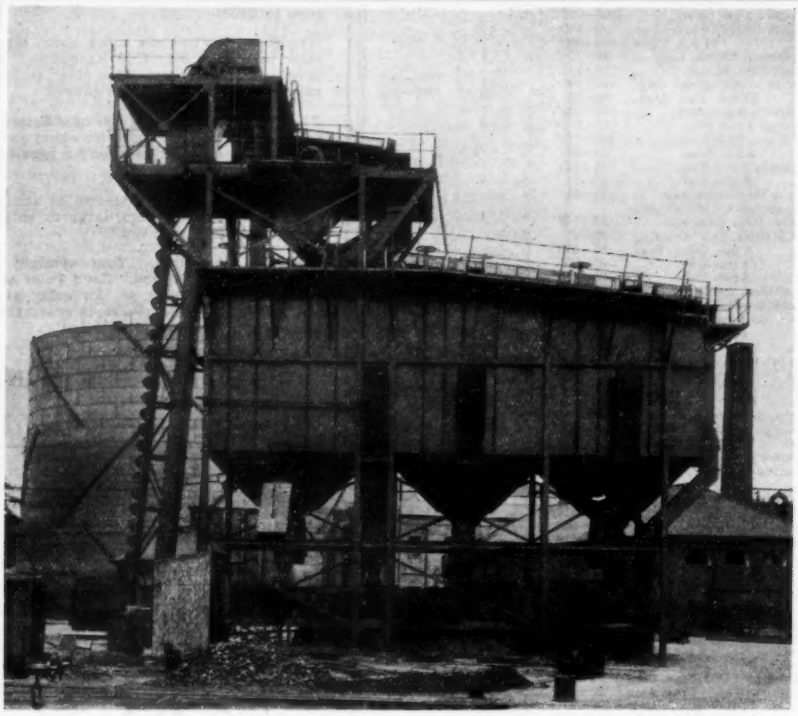

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ARE YOU EQUIPPED WITH COAL AND COKE HANDLING PLANT TOGETHER WITH OTHER LABOUR SAVING APPLIANCES?

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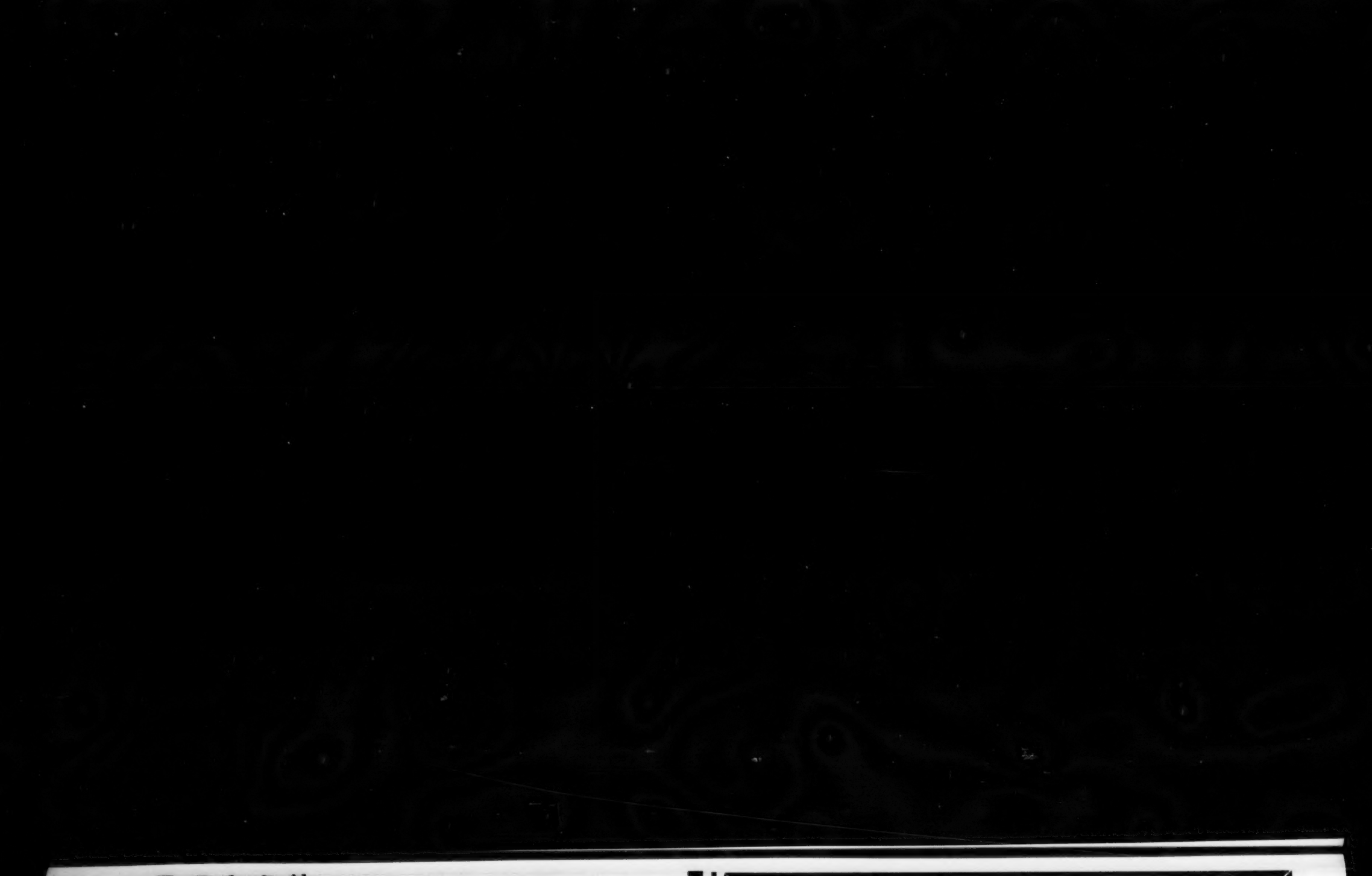
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